PCT - Sequence listing for submission.txt
SEQUENCE LISTING

<110> PERFORMANCE GENOMICS, INC.

<120> Insulin-Like Growth Factor-1 Receptor (IGF-1R) Polymorphic
Alleles and Use of the Same to Identify DNA Markers for
Reproductive Longevity

<130> 31649-2137

<150> US 10/662,613
<151> 2003-09-15

<160> 22

<170> PatentIn version 3.2

<210> 1
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1

PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt

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3

PCT - Sequence listing for submission.txt

Cys Gly Pro Gly Ile Asp Ile Arg Asn Asp Tyr Gln Gln Leu Lys Arg
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Leu Glu Asn Cys Thr Val Ile Glu Gly Phe Leu His Ile Leu Leu Ile
    50   55   60

Ser Lys Ala Glu Asp Tyr Arg Ser Tyr Arg Phe Pro Lys Leu Thr Val
65   70   75   80

Ile Thr Glu Tyr Leu Leu Leu Phe Arg Val Ala Gly Leu Glu Ser Leu
            85   90   95

Gly Asp Leu Phe Pro Asn Leu Thr Val Ile Arg Gly Trp Lys Leu Phe
            100   105   110

Tyr Asn Tyr Ala Leu Val Ile Phe Glu Met Thr Asn Leu Lys Asp Ile
        115   120   125

Gly Leu Tyr Asn Leu Arg Asn Ile Thr Arg Gly Ala Ile Arg Ile Glu
    130   135   140

Lys Asn Ala Asp Leu Cys Tyr Leu Ser Thr Ile Asp Trp Ser Leu Ile
145   150   155   160

Leu Asp Ala Val Ser Asn Asn Tyr Ile Val Gly Asn Lys Pro Pro Lys
            165   170   175

Glu Cys Gly Asp Leu Cys Pro Gly Thr Leu Glu Glu Lys Pro Met Cys
            180   185   190

Glu Lys Thr Thr Ile Asn Asn Glu Tyr Asn Tyr Arg Cys Trp Thr Thr
        195   200   205

Asn Arg Cys Gln Lys Met Cys Pro Ser Val Cys Gly Lys Arg Ala Cys
    210   215   220

Thr Glu Asn Asn Glu Cys Cys His Pro Glu Cys Leu Gly Ser Cys His
225   230   235   240

Thr Pro Asp Asp Asn Thr Thr Cys Val Ala Cys Arg His Tyr Tyr Tyr
            245   250   255

Lys Gly Val Cys Val Pro Ala Cys Pro Pro Gly Thr Tyr Arg Phe Glu
            260   265   270

Gly Trp Arg Cys Val Asp Arg Asp Phe Cys Ala Asn Ile Pro Asn Ala
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PCT - Sequence listing for submission.txt
275   280   285

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Gln Glu Cys Pro Ser Gly Phe Ile Arg Asn Ser Thr Gln Ser Met Tyr
305   310   315   320

Cys Ile Pro Cys Glu Gly Pro Cys Pro Lys Val Cys Gly Asp Glu Glu
                325   330   335

Lys Lys Thr Lys Thr Ile Asp Ser Val Thr Ser Ala Gln Met Leu Gln
            340   345   350

Gly Cys Thr Ile Leu Lys Gly Asn Leu Leu Ile Asn Ile Arg Arg Gly
        355   360   365

Asn Asn Ile Ala Ser Glu Leu Glu Asn Phe Met Gly Leu Ile Glu Val
    370   375   380

Val Thr Gly Tyr Val Lys Ile Arg His Ser His Ala Leu Val Ser Leu
385   390   395   400

Ser Phe Leu Lys Asn Leu Arg Leu Ile Leu Gly Glu Glu Gln Leu Glu
                405   410   415

Gly Asn Tyr Ser Phe Tyr Val Leu Asp Asn Gln Asn Leu Gln Gln Leu
            420   425   430

Trp Asp Trp Asn His Arg Asn Leu Thr Val Arg Ser Gly Lys Met Tyr
        435   440   445

Phe Ala Phe Asn Pro Lys Leu Cys Val Ser Glu Ile Tyr Arg Met Glu
    450   455   460

Glu Val Thr Gly Thr Lys Gly Arg Gln Ser Lys Gly Asp Ile Asn Thr
465   470   475   480

Arg Asn Asn Gly Glu Arg Ala Ser Cys Glu Ser Asp Val Leu Arg Phe
                485   490   495

Thr Ser Thr Thr Thr Trp Lys Asn Arg Ile Ile Ile Thr Trp His Arg
            500   505   510

Tyr Arg Pro Pro Asp Tyr Arg Asp Leu Ile Ser Phe Thr Val Tyr Tyr
        515   520   525

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SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt
Lys Glu Ala Pro Phe Lys Asn Val Thr Glu Tyr Asp Gly Gln Asp Ala
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Cys Gly Ser Asn Ser Trp Asn Met Val Asp Val Asp Leu Pro Pro Asn
545   550   555   560

Lys Glu Gly Glu Pro Gly Ile Leu Leu His Gly Leu Lys Pro Trp Thr
            565   570   575

Gln Tyr Ala Val Tyr Val Lys Ala Val Thr Leu Thr Met Val Glu Asn
        580   585   590

Asp His Ile Arg Gly Ala Lys Ser Glu Ile Leu Tyr Ile Arg Thr Asn
    595   600   605

Ala Ser Val Pro Ser Ile Pro Leu Asp Val Leu Ser Ala Ser Asn Ser
    610   615   620

Ser Ser Gln Leu Ile Val Lys Trp Asn Pro Pro Thr Leu Pro Asn Gly
625   630   635   640

Asn Leu Ser Tyr Tyr Ile Val Arg Trp Gln Arg Gln Pro Gln Asp Gly
            645   650   655

Tyr Leu Tyr Arg His Asn Tyr Cys Ser Lys Asp Lys Ile Pro Ile Arg
            660   665   670

Lys Tyr Ala Asp Gly Thr Ile Asp Val Glu Glu Val Thr Glu Asn Pro
            675   680   685

Lys Thr Glu Val Cys Gly Gly Asp Lys Gly Pro Cys Cys Ala Cys Pro
    690   695   700

Lys Thr Glu Ala Glu Lys Gln Ala Glu Lys Glu Glu Ala Glu Tyr Arg
705   710   715   720

Lys Val Phe Glu Asn Phe Leu His Asn Ser Ile Phe Val Pro Arg Pro
            725   730   735

Glu Arg Arg Arg Arg Asp Val Met Gln Val Ala Asn Thr Thr Met Ser
            740   745   750

Ser Arg Ser Arg Asn Thr Thr Val Ala Asp Thr Tyr Asn Ile Thr Asp
            755   760   765

Pro Glu Glu Phe Glu Thr Glu Tyr Pro Phe Phe Glu Ser Arg Val Asp
    770   775   780

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SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

Asn Lys Glu Arg Thr Val Ile Ser Asn Leu Arg Pro Phe Thr Leu Tyr
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Arg Ile Asp Ile His Ser Cys Asn His Glu Ala Glu Lys Leu Gly Cys
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Ser Ala Ser Asn Phe Val Phe Ala Arg Thr Met Pro Ala Glu Gly Ala
            820   825   830

Asp Asp Ile Pro Gly Pro Val Thr Trp Glu Pro Arg Pro Glu Asn Ser
        835   840   845

Ile Phe Leu Lys Trp Pro Glu Pro Glu Asn Pro Asn Gly Leu Ile Leu
    850   855   860

Met Tyr Glu Ile Lys Tyr Gly Ser Gln Val Glu Asp Gln Arg Glu Cys
865   870   875   880

Val Ser Arg Gln Glu Tyr Arg Lys Tyr Gly Gly Ala Lys Leu Asn Arg
            885   890   895

Leu Asn Pro Gly Asn Tyr Thr Ala Arg Ile Gln Ala Thr Ser Leu Ser
        900   905   910

Gly Asn Gly Ser Trp Thr Asp Pro Val Phe Phe Tyr Val Pro Ala Lys
        915   920   925

Thr Thr Tyr Glu Asn Phe Met His Leu Ile Ile Ala Leu Pro Val Ala
    930   935   940

Ile Leu Leu Ile Val Gly Gly Leu Val Ile Met Leu Tyr Val Phe His
945   950   955   960

Arg Lys Arg Asn Asn Ser Arg Leu Gly Asn Gly Val Leu Tyr Ala Ser
            965   970   975

Val Asn Pro Glu Tyr Phe Ser Ala Ala Asp Val Tyr Val Pro Asp Glu
        980   985   990

Trp Glu Val Ala Arg Glu Lys Ile Thr Met Asn Arg Glu Leu Gly Gln
        995   1000   1005

Gly Ser Phe Gly Met Val Tyr Glu Gly Val Ala Lys Gly Val Val
    1010   1015   1020

Lys Asp Glu Pro Glu Thr Arg Val Ala Ile Lys Thr Val Asn Glu
    1025   1030   1035
                            7

PCT - Sequence listing for submission.txt

Ala Ala Ser Met Arg Glu Arg Ile Glu Phe Leu Asn Glu Ala Ser
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Val Met Lys Glu Phe Asn Cys His His Val Val Arg Leu Leu Gly
    1055   1060   1065

Val Val Ser Gln Gly Gln Pro Thr Leu Val Ile Met Glu Leu Met
    1070   1075   1080

Thr Arg Gly Asp Leu Lys Ser Tyr Leu Arg Ser Leu Arg Pro Glu
    1085   1090   1095

Val Glu Gln Asn Asn Leu Val Leu Ile Pro Pro Ser Leu Ser Lys
    1100   1105   1110

Met Ile Gln Met Ala Gly Glu Ile Ala Asp Gly Met Ala Tyr Leu
    1115   1120   1125

Asn Ala Asn Lys Phe Val His Arg Asp Leu Ala Ala Arg Asn Cys
    1130   1135   1140

Met Val Ala Glu Asp Phe Thr Val Lys Ile Gly Asp Phe Gly Met
    1145   1150   1155

Thr Arg Asp Ile Tyr Glu Thr Asp Tyr Tyr Arg Lys Gly Gly Lys
    1160   1165   1170

Gly Leu Leu Pro Val Arg Trp Met Ser Pro Glu Ser Leu Lys Asp
    1175   1180   1185

Gly Val Phe Thr Thr His Ser Asp Val Trp Ser Phe Gly Val Val
    1190   1195   1200

Leu Trp Glu Ile Ala Thr Leu Ala Glu Gln Pro Tyr Gln Gly Leu
    1205   1210   1215

Ser Asn Glu Gln Val Leu Arg Phe Val Met Glu Gly Gly Leu Leu
    1220   1225   1230

Asp Lys Pro Asp Asn Cys Pro Asp Met Leu Phe Glu Leu Met Arg
    1235   1240   1245

Met Cys Trp Gln Tyr Asn Pro Lys Met Arg Pro Ser Phe Leu Glu
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Ile Ile Gly Ser Ile Lys Asp Glu Met Glu Pro Ser Phe Gln Glu

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PCT - Sequence listing for submission.txt

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Val Pro Leu Asp Pro Ser Ala Ser Ser Ala Ser Leu Pro Leu Pro
    1310               1315              1320

Glu Arg His Ser Gly His Lys Ala Glu Asn Gly Pro Gly Pro Gly
    1325               1330              1335

Val Leu Val Leu Arg Ala Ser Phe Asp Glu Arg Gln Pro Tyr Ala
    1340               1345              1350

His Met Asn Gly Gly Arg Ala Asn Glu Arg Ala Leu Pro Leu Pro
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Gln Ser Ser Thr Cys
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SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt

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ttgtcaccat gtggtccggt tgctgggtgt ggtatcccaa ggccagccca ccctggtcat     3720
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cttcggggtc gtcctctggg agatcgccac gctggctgag cagccctacc agggcttgtc     4140
caacgagcaa gttcttcgtt tcgtcatgga gggtggcctt ctggacaagc cggacaactg     4200
ccctgatatg ctgtttgaac ttatgcgcat gtgctggcag tataacccca agatgcggcc     4260
ctccttcctg gagatcatcg gcagcatcaa ggatgagatg gagcccagct tccaggaggt     4320
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tgagaacatg gagagcgtcc cactggaccc ttcggcctcc tcagcctccc tgcctctgcc     4440
tgaaagacac tcaggacaca aggctgagaa tggcccgggc cctggcgtgc tcgttctccg     4500
cgccagtttt gatgagagac agccttacgc tcacatgaac gggggacgcg ccaacgagag     4560
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SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

ggccttgcct ctgccccagt cctcgacctg ctgatcctcg gacacaccga agcacgcgcc   4620

aacagtaacg tgtgtgcgcc cactcggtgg gcggggggc ggggagggga gagcaggttg   4680

taacaatcta ttcacaagcc tcctgtacct cagtggatct tcagacctgc cattgctgcc   4740

cacgggagac ggcttctctg cagtaaacac atttgggacc ttcctttttt caatatgcaa   4800

gcagctttttt atttccttta cccgaaccct taactgacat gggcctctgc aaaccttaat   4860

gacaacactt aatagcaaca ggacactcga gaattgagtc tcttcgttct ctgcctttttt   4920

ctctcctctg ccttccctct ctgccctctc cccttccact tccacgctct cct   4973

<210>   4
<211>   131
<212>   PRT
<213>   Mus musculus

<400>   4

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1   5   10   15

Pro Ser Phe Leu Glu Ile Ile Gly Ser Ile Lys Asp Glu Met Glu Pro
            20   25   30

Ser Phe Gln Glu Val Ser Phe Tyr Tyr Ser Glu Glu Asn Lys Pro Pro
            35   40   45

Glu Pro Glu Glu Leu Glu Met Glu Leu Glu Met Glu Pro Glu Asn Met
    50   55   60

Glu Ser Val Pro Leu Asp Pro Ser Ala Ser Ser Ala Ser Leu Pro Leu
65   70   75   80

Pro Glu Arg His Ser Gly His Lys Ala Glu Asn Gly Pro Gly Pro Gly
                85   90   95

Val Leu Val Leu Arg Ala Ser Phe Asp Glu Arg Gln Pro Tyr Ala His
            100   105   110

Met Asn Gly Gly Arg Ala Asn Glu Arg Ala Leu Pro Leu Pro Gln Ser
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Ser Thr Cys
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<211>   446
<212>   DNA
<213>   Mus musculus

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SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

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agaaaggacc accctgtatg tccttggcca gctacggaat tgttgccttg ccctcttccc     180

agtgggtagt ttccccgttg cattcttgcc acccacagac ccttgaggtg ggagcctcgc     240

cctcgccctc ccaccagaac tctgctcctg gctacaggcc ccagcaccac ccagttccga     300

gaggcgtagg tcatcatgtg ggatgccccc ctcccctct gagtccttt cttgattcct      360

ccaggtccgg ttgctgggtg tggtatccca aggccagccc accctggtca tcatggaact     420

aatgacacgc ggtgatctca aaagtt                                         446


<210>   6
<211>   174481
<212>   DNA
<213>   Mus musculus

<400>   6
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tgcctctgag cccctcgcc acaaataact tgagtgccat gcacggaggt gcccacttgt     120

ggcttaggtt ctctcagacc ttgtttgtcc ttcagcccct tggggaggag cccaggctac     180

cacctgctgt ccctaagcct aggacccagt ggagaccatc gaattgcaga tttagacaga     240

attaaccatc acagggcctc ataccatcct ttttaaagga ccaggccttg atggagactg     300

cagtcgccaa cccccatggt gcttttgcta ctatggaaac actgaaataa ccaacacaca     360

cactggttgt ggatgccact gaacacacac acacacac acacacac acacacac        420

tggttgatgc ctctgaaccc caaaaggtca gcctggaagg aatggtggct gctctgtcct     480

ccatctcagc cgcacatctg aagtcacccc agccacaggc acctgtcatt gtcacagctg     540

gtccctatgg gcttactctt tcctcacgat gctcttattt ttagtcagac accaaagcgc     600

tttatttatt tttagttaga cacatttggc acatttcaag ttttccaact tgtattcgat     660

aaagggaaac aaaggattcc tgtcacctgt cctaattgaa agcttctttg ataaatactt     720

tcggacagtg attcatacta tcagccttcc aaaaggagga aggaaaaaaa aaaaaaagaa     780

aagaaagag cattcttttg agacactctt attcccttgc acttctgatt tgtttttttt     840

tttttttttt ttatttcggg tccagagatg gaatggctca aattacattt gacgtcctca     900

ggaaaccata ctcttggtaa aagcagtgcc tgtctcaaat gaaatatggg catggaaatg     960

tgctgcccc tcttggactc acgtctttcc ctacatttct ctcatcagcc agcagttgct    1020

gggagtcagg cgccattggg aaatgcccac tggatcccag agtgtggcct gcctttatta    1080

gtaatgtttt gagtttgccg gaggacagac tcttcatttt attggagccc ctagttgtgt    1140

aaatcttgtc ttgacaactg gtatgtagac agatggtgaa atgcaaggat tctaacaaac    1200
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                                      13

PCT - Sequence listing for submission.txt

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ccaaggcagt cttgatgggg aatgaggctt agcccagcaa aacaagacct tctaaccttg   1380

ctcccggagt tgtctttcct aatttaaaac aaacaaggat gtagtttcct caaagctgaa   1440

tgtggttcta aagtgtgtga aatgtgtgtt gatgggtttt taatgatcct agaggaagct   1500

ggcttctcgg tctttctact taatctcaac attttctaag ccgttcttta gagctgcagg   1560

ttcccacagc agctgcaaga ctgtgtatcc tatcagtcaa agccagatgg tagtcctgag   1620

atggtgggcc attctgttga aaagctttct gtcccctgaa gtttttctcc ctaggaacca   1680

atcctgatga tgggccacga ccaatacact cagcagttgc caggcacagc tggatcccct   1740

ctccagtgct gctacctact ctagaggccc tggggtccag cgacttgatg tagcatcctg   1800

atcttttaca gactggaaag tgtggcaact gagaagtatg cgctgagagt caggtgaggg   1860

actcaaaccc tcagtcatac tccagataaa actgatcagg acgatgctca accctacctg   1920

cagcccaagc tgagatgagg ctcccctcct ctcagtctga catgctagcc tcccccagga   1980

ggaggccaca cattttcat tttagaaata tagatcaaga agaaattgta aagaaagaga   2040

actccttgca aatctcacta gggttgcctg atgctgacat cttcaatgtc caatccaatg   2100

tactaacatc agtacaatta agaaagagag aagcagagag aggggggagaa ggaagggaag   2160

gagaacggga tggaggggtt gaggaatgag tatgtgtgca cgtgcacaca gaccgctcta   2220

tacaatttag accagtgcaa ggcttcctgg aattgcctcc acctcaaaac gccttcccct   2280

gctactccca ccttagcttc ttccgcactt tcttcccca ttttaacacg tggtgtcctt   2340

ttcagactca tttggctgta ataaatatc cagaaaacaa acaaacgaca aaggataaag   2400

gagtttattt ccgtttacaa ttccaggtta cagtccatcg tggtgggaaa gtcagcagca   2460

ggaacttcag agaattggtc gcatcacatc cacagtcaag agcagagaga aatgcataca   2520

tatttgctgt cttgtttgct ttctcatgtt cagcttggat ttctccattc ttttatagtt   2580

caggactcaa tgcctaggga atgacactgc ccatagtgaa ctgggttccc ccacatcaat   2640

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catgtcaaca tttcctagga atgttggcct gtgagtatgt ctgtgcccac aagtaagaca   2820

attggctaat tgatatgaga aggcccagcc cactgtaggt ggtaccattc cttaggctgg   2880

agatccttga gctgtaggag agaggagaaa tcaaactgag cacaagcaag tgagcatgtg   2940

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actttcccac agtgatgggc tataacataa ttatatgctg aaatgaattc ctctctcctc   3060
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SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

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taagttgctt tcgttgttgt ttttattaca gcaacagtta aagtagaaca cttatttaaa    3120

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ctgtaaacag tagtttccag ttctgagatc agtggccagg tgtatacatg ttactcagtc    3240

cactttcagc tctaaaaaaa aaaaaattg gggctcagcg gttaagagca ctgactgctc     3300

ttccaaaggt cctgagttca aatcccagca accacacggt ggctcacaac cacccataac    3360

ataacaaggt ctgatgccct cttctggagc ttctgaagac agctacagtg tactcacata    3420

taataataat aaataaatct ttttttaaa tctatcacca tattgcaaag tagtgtcttc     3480

cattcctatc aatatgtgag acccagtttc tcattctttc tttgtttgtt tgtttaagat    3540

tttatttatt cattgtatgt atatgagtac actgtagttg tacagatggt tgtgggccat    3600

catgtcattg ctgggaatta aattcagtac ctccgctggc tccggccccg ctggctccag    3660

cccaaagatt tatttattgt tagacctttt aaatatatca cataatagtc tttatacaat    3720

agataagtgc tttctcagta ataacctctt aacagagttt ttattttta tttttaacag     3780

agttttaaa agagccaaca ttcttaactc tgtggctgta tttttgcttg tcttgtttta     3840

aaacaagctc ttgggtggtg gtagtgcaca cctttagtcc cagcagatac tggcagatcc    3900

ctatgaactg gtcgagagag caagttacag aaaagtcaag gttacacaga gaaaccctgc    3960

taactaaggt tgagatctgc tatgtctaga tggcttatct gagctcagtg caaaatggag    4020

gactctatac catctgggct tcccctttctc tgaccttgtc taggggactc cctatactct    4080

ctacctggga aaggtcaagt agcctcggaa gaccaacaaa cttcctcttt tccgcagaag    4140

aacccaccca acaagtaccc gggattcctg aaatgcctct ccatacaaat gaggaattcc    4200

aagaacttta aactctaacc aatgattttc atttaccctg aaaactcctt cacactctcc    4260

aaggtcctgg tttaccccaa ataaagtgta ttcgtacaag ccccacccta gtagaggtat    4320

ggaggtatgc tcacaaacca agatcggcta agagagctgt tttcattgaa gattgttgga    4380

gaaggccttc ttctaaaaga gctgtaactc taagatcctt cgggaaggcc ttctctccct    4440

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ccccccccc ccattctgga cactgtttca tccttcccac ccagtgtgca gtggcatctg     4560

gatacctccc tgactatgtt tcatacagtc aattctgagg aagcccccag attagcaagg    4620

ctgaggttct ctggggccta tagaacttgt tgccaggtga tagaacttgt tactgggtag    4680

tgtgggctgg tttgagcaaa cctgggtatc tttggtttca ggttttgggc ccttccggca    4740

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cccccccccc ccgggccaac ctggttcctt ctgtggctct tgggaaaccc caatgccaat    4860

gcgcgggact cctaagaaac cagagtcacc ttggaaggaa ggcaagcagt gggcccctgg    4920

aagaaaggct tgtatttggt cctggaatgg tgtgacttgc ctggtcaggt acttctctcg    4980
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PCT - Sequence listing for submission.txt

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tcttgtcctc acctacgcat gcggaagtga taacatggat gtctctggcc tccactgaca   5160
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accaagccaa atgtggggcc tggagtctat tctcagagtt tcccaggcca gctgagaaac   5520
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tggaggtatg gcttagttag tagagaactt ggttgcatgc atgtgggtct gggtaacatc   6780
ccagcactac ataaaatcag gcatggtgtt atacctagta ctagggaagt agaggcagta   6840
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PCT - Sequence listing for submission.txt

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tcaggaggta gaggcaggca gattactgtg ggtttaaggc tagcctggtc tgtacagtga   7020
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aaacttctta caaagaaatg tgaactatca gttcctagcc taagatcacc tgatacacaa   7140
gaaaataaaa taccatgtta aaaaaaatca gtagatgccg ttttaaaaaa cagaattata   7200
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agataggtga tagactttac ccacatgtac acatatatag ctgttcagaa acagacgaag   8100
agaaattagt aaactagaat atagatatgg agatattatt caaaggacaa tataaagatg   8160
ggcaaacaag catagagggg ataatgtaaa tagtaaagga agtttctgtt taaatagaat   8220
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gtctcctttc tgttgcctgt ggatcaagat gtagaactct tgggctggtg agatggctca   8520
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gctacagtga acttacatat aataaataaa taaataaata aataaataaa taataaatct   8700
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17

PCT - Sequence listing for submission.txt

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ttgccttgct tcctgctctg acaataatgg agtaaacctt tgaaattgta agccagcccc   8820
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atccacagag atagaaataa agaaaatcca cacctaaaca tagtagagtt ggagactgca   9180
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aagatctggt ggatgtctga gttaaaggcc agccttatgt acagagtgag ttccagatca  10560
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                                  18

PCT - Sequence listing for submission.txt

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catatcagca ttgtttgtaa catgtaatag tagtagttcg taattccagg atggaactaa   10680

aattcacaac agtcaaaggg tcggtggtct tctccctcca gtgcccctca ttgtcggtga   10740

acttcaagct catctccacc atctcttcag tgacaggttc tggagcaggc tctgctcaat   10800

cttcttgctt ttaataggac caaaggatgg tgactagaca cacctgcatc ggcacctgga   10860

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ttttggcccc tggactctag gtcttgcatc tattctccct tccttgtgtt cttcctttgg   10980

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aacttaggtt atcctgtgtc ctgtctaaca cctcagtgga ctctattttt ggttcagcat   11100

cttcctattt ggttttcagt agtcactgaa agtgctggca aacagttaac agtgtcttta   11160

gtaggaatgg ttatctaagg gaccatacta ggtaaagggc tgagatactt catatacata   11220

gcataccctg actgctgtaa agatagaaaa acagactgag atgccctaca cagtctgtgt   11280

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gcctggcttg gagcatgtgt tccagggact gaatcatttg aggtaggagt gaatactttt   11400

ctttctatcc tcttgcattc ttccagtaaa attaaagctt atcgctatca tgtatgttcc   11460

caagcaatgt ttaattatct gtaaaaagct ttgtatctga gactgcatgg attacagatg   11520

ggaaaggaaa aaaaagtgtt tatttccaca gtgtctcact tccaagaatg gggtgagcta   11580

ttgacaaacc atcacacgaa gacatttttt tttaaagatt tatttatta ttatatgtaa   11640

gtacactgta gttgtcttca gatacaccag aatagggcat cagatctcat tacgggtggt   11700

tgtgagccac catgtggttg ctgggatttg aacttcggac cttcggaaga gcagtcgggt   11760

gctcttaccc actgagccat ctcaccagcc ccgacattat tttttttgtt gcagccactc   11820

ataaatggga gaagaatgtt gaaaggaaaa gaaaatgtag gggctggaga gatggctcca   11880

tggttaatag cactgactgc tcttaccgag gtcctgagtt caattcccag caaccacatg   11940

gtggttcaca accatctgtt acaggatctg atgccctcct ctggtgtgtc tgaacacagc   12000

aagtgtgtgc tcacataaaa taaataaatc ttaaaataga aaaagaaaa gaaaatgcag   12060

aaaaataata tgaagtctaa aagttcacag cgaaagaggc attttctgca aagttcccaa   12120

gcaagtgact ccatgctgtt tgttgatcag cattgtgagc cctcgtgttt aacattgagc   12180

taccccatac tccacaagcc caacgctcct tcagtgacat atgcagcagc tgcatcatca   12240

ttgcccatga tctagattct aagctctagg tgtggtggtt tgaataagga tggctcccat   12300

agactcatgc cagggaatgg cattaggagc tgtggcctcg tgggaggaag tatgtcactg   12360

agggtgggct aataatatag aagttagtac caaggactgg ggttttgct gccctaggct   12420

ggaccaagtt tcttggtgga atgtggactt tggattagga aaatagttga atggttcaag   12480

tagagcatca caggccatac tggtaagacc atggaagatg gtgctgttgg tgacatgaat   12540
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PCT - Sequence listing for submission.txt

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tatggggtac acaggtttta gaggagaaga attgtaggcc tagatttttc aaaccctact   12600
tttaataagg gttcttaaac gctttatcct ctcttctagc ccaccaccca ccagagggag   12660
tggaaaggaa aggttaatag agcaaaggag ggtgtggatc tgtttagaaa aagttctttg   12720
gagcaaatcc aatctgtgtt accaggatat cagcagtaca gttcactcag aacagcagca   12780
gcagctcgat ccacttgcaa acaccattca tgaatcagca atggcaggtc aatccagaag   12840
aaacctcgag gctctgccaa gtacaaggaa gcagcagcaa gaagctgcca gaaagaacac   12900
caccagaagt tcttttgtgg catttctgtc tatgaagtca tatcaaatga tgactagcaa   12960
agaatggcaa ggcaaggtgc tggtgagatg gcttagcagg taagagcact gactgctctt   13020
cccaaggtac tgagttcaaa tcccagcaac cacatggtgg cttacaacca tcgtaatgag   13080
atctgatgcc ctcttctggt gtgtctcaag tcaactacag tgtacttatg tataataata   13140
ataaataaat taaaaaaaaa aagaatggca aaccaaacca tacagcttca tcagcgaaga   13200
ccagtgtcag caaaacccaa tgataaccag caaatatata tatcctttcc aaacatcaca   13260
ttcttgttct ctcaagtgtc agctttagca aaacatcaca tgccctttgc ctagactgct   13320
tctagaaaac caccgtgtat ctgttctcag caaaacatcc tcccacatgt ctgcttcagc   13380
aaaaacatcc tctcataaga cagtttccag aaaaacatca catgacatga ctgcatctcc   13440
aaagaagcca gaaatttcca attcaaagag tactagtatg caacctagag accattcttg   13500
tgatattttg acaaagatca tgggtacatt ctgctcttgt catgcacaca gacacacaaa   13560
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agatttccaa aaagtttagt attgactttg ttgcttggtt attagtgacc atacttatgc   13680
agatctgtaa cgaagaggac caagctaaac aaggaacata cagaatgtac agtttgagga   13740
gaaaaggagc ccaggaagt gtaatggagt caagtccagt gcttgaggag ataaacctga   13800
tgttaaatgg aaaggagaag tggtgacctc aagccaggac tccacctagc taagcttcca   13860
acttctgaga agtaatcaaa gaaaagttta gaactgggtg tagctgaatt accttgaatg   13920
ttagcagcac tcatgagaca gaggcagcag gcaggtcact gagttcaagg ccagcctggt   13980
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aagctggtga agatggattt gaatgaagag gcacattcca ggcccagcag cagcagaact   14100
tggtagcttt ggccatattg ctctggcttt agagtggagg gtacaaaaaa aagagttatg   14160
gaatctccct ccgtgactaa ggaaagctga tggggccagg tgtgtgtcag ggatgtttct   14220
gcatggagac ccagagacct ttgcttaaag ttgtgcaggt aaaaacctgg attgttgtga   14280
tagtttgaat gcttggccac agggagtggc actattggga ggtgtggcct tattgaacga   14340
agcgtggcct tgttagagga agtgtgtcac tgtggaggca ggactttgaa gtcatatatg   14400
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20

PCT - Sequence listing for submission.txt

```
ctcaagctct gttcagtgtg acatacattc tccttctgat gcctccagat caatatgtaa  14460

aactctcagc tcctccagca caatgtctcc ttggatgctg ccatccttcc cgccatgatg  14520

ataatggagt gaacctctga aactgtaagt cagccccaat taaatgttat gagttgccat  14580

ggtcatggtg tctattcaca gtgatggaaa acctaactca gacgattgcc ccagaaagcc  14640

cccaagatgt tggatatgcc agagtcatgg gatttgtgaa gagggatgct gttaacaggg  14700

agtggaactg gcccaagaga aataactgtg ttgcagtcaa caaagttgaa aagagttgga  14760

gatctgaaga ctgctttgac atcaggcacg gagatgcaga gtttggagtt tacacagctg  14820

ttttttggtc ttgcttttgt ccagtatttc ccctttcctc ccttttggga tggtgataga  14880

tatcctgtat atgttggaag tatgtgatct tgattttgat tttattccag atcatagtta  14940

agagcttgcc ataagtctta gaacagactt tggactttta agcagggtta agactgatag  15000

actatggaga cttttgaggt aggattgagt gcattctgg attatgataa agctacaagt  15060

ctgtgggggac tgggatgtag aatgtggtgg cttgaaaaag aatggccccc acagacacat  15120

acttgaatgt ttaaggggta tcattagaag gtgtggcctt gttggagtag gtgtggcttt  15180

attagaggaa gtatattatt gggtttgggg ggtggtgagc tttgggtttt gtctttgtgt  15240

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ttgcatatca gatatttatt tacattgatt cacaacaatt gtaaaacttt cagttttgaa  15540

gtcgcaatga aataatttta tggttggggg tgtcattaca acatgaagaa ctgtattaaa  15600

gggtcacagc attaggcagg ttgagaatca ctgcaacaaa agaagaattt tgtgccaggt  15660

ggtagtgcca tgtgtctta atcccagcac tcaggaggca gaggcaggca gatctctgag  15720

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gagctgctgt gtgggtgcta ggaatcaaac ctgggtcctc cagtgctctt aactgatgag  16200

ccatctctcc agccccttcc atgattcttt aaaaagcagt catagtgaag agagtacaag  16260

gttgtgcatc aggacagtaa cacccccaat ccatttctgt aacaagtcag agtaagatga  16320
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PCT - Sequence listing for submission.txt

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cagatctttc aaagggacac cagcaactgt ctgggccctt cctgtaggtc cccctaaact   16380
tcactttagt ctggagaaat tccagggctc tcagattact ccagagagct agaaagagaa   16440
gcttttcttg tctcgttttc cgtttgtgtt tataacataa acttttattt atttatttat   16500
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agagggagtc agatctcgtt acggatggtt gggagccacc atgtggttgc tgggatttga   16620
actcgggacc tttggaagag cagtcaggtg ctcttaccca ctgagccatc tcaccagccc   16680
tataacataa acttttaatt tcactgggaa gacattcaag cagaggtccc aagttctatc   16740
actcagaaca catatacaga tctggacata ttgacatgca catgaaatgc aatggagata   16800
gagagacaga aggatccctg gtacttgctg gccacccaga ctggtagaac cagcaggctc   16860
caggtagctt cccaaccatt tctccatctt tgggtccatt gttgcctgtc tgaatatctt   16920
tgcagatagt ttttagaggg gaaatacagc aagtaagcag aatggtgcag ggtagagcct   16980
gcacctggaa agtggagaaa catcctagag agacacagcc ttgcaaggct ggtccagggt   17040
gtgggcagtg tacagctgtg actgcagatg tcagcacaga tgctgggtac ctgattcatg   17100
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ccaggtagcc ttctagacct gtctttggaa tctgagttca gactggacat tttgggggct   17280
catttccaga gtcactctcc tgtgctctgc tcccatattc atgagaagag cactcccatg   17340
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cctagtgcca agcaattatt gctcatagca gccaaaaaca tgtaagaaac tgccccattc   17460
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gcctcacaca ggaggcagga agaaaagcat gcaggaatca aaccatagcc taaagtataa   17940
gatgaacatc caggagccta aaccactcta aagaaaatta catagatcct ctatgtaaat   18000
taaggagcag gagagtgagc tttaagttgt ttctgcaggt gcataaatta tgcaggcact   18060
tcaggcccta tggagaactt aaccctcctc ctcagatgct ggctgcacgc ggacttcctg   18120
ccacaggacc cctgctatga agtgagtgca ggaaagaacg ttttatagtg aagatgcctg   18180
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22

PCT - Sequence listing for submission.txt

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agagacttcc aggccaggtg atccaagtca acacctacag tgacaagtct tgttgatggt 18240

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caaccctaaa gcccagtctg atctgagacg agaaggagac agattccagg gaaggcacac 18360

gctctacagt gtctggccag tgttccatag aaccggcaaa gtcattaaac acaagaaaga 18420

actgtaggag atggaacaat gtgttgtgat gacctagatg gaccttaaag gactgctctg 18480

tgtgtgtgtg taactaagga acctgggtaa acgatgcggt ccttaccact cttctatcca 18540

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agcagagaca agaggatctc tgagtttgag gccagcctgg tctctagagt tcagggctac 18660

acagaaagac cctgccttga aaccaaccaa ccaaccaacc aaccaatgaa ccacccataa 18720

cccacagatt tttgttgggt gtgcttttgt tggaacctcc ctctcttttc tcagttttaa 18780

gactccagaa ccgaagtgag aacagctggg catgttactg tgtgcttggg atcccagcaa 18840

tggggaagag gagacaagac tttcctggca cttattggta agctagccta acttacccta 18900

ggtgagctcc gggccagtga gagactctgt attaaaaaaa aaaaagtgg atgttaaaag 18960

acacctaagg ttgtcctctg gcctccacat gcatgtacag acatatgcac acatgtgtgt 19020

gcacacatga ctgtttcctc ttgtttatca cctgtcctta tgatttgaga gaactgtagt 19080

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ccatgaagtt cagagagtcc attcgcaaca ttatttgacc ttcagcacga tttgtttctg 19380

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tatccatact gttgcacagc aagtgtctag aactttctga atctgcagaa cagactcgct 19500

actgatttaa ccatggcctc ccctccccca cccttcccct ccccttggct tctgctgacc 19560

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tcttacttca tagcagtaat tttgctaatg ctatggatca tagtacaaat atttttggag 19860

atagaggttt gccaaggggg gtctcaatcc acaggttaag aacttctgat ttagactttt 19920

agttcaggcc aaattacaca gtgagagcct atctctttca tttcctaatt tgaaagaaag 19980

aaagagggag ggagggaggg agggaggggg ggggaaggga gggagggaag ggagggaggg 20040

aagggaggga gggaagggag ggagggaagg gagagagaga gagagaaaga gagagagaga 20100
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PCT - Sequence listing for submission.txt

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gaaagaaaga gagaaagaaa gggagaaaga gagaaaaggc taggcgtgat gcagctcact   20160
gcagctctgt gagacgcagg caggtccatg gtcttcccac ttcagccgcc tagtgaattt   20220
gaggccagcc tgagagataa gagaccctgc ctttaaaaaa caaaatagac aatcagctta   20280
gtgggtaaaa gtgtttgtga ccaaagctgc caacctgtgc tggatcccca gaacccacat   20340
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aaaatggaag gggcagaaag gggaaggaag cagatggggt cttttgtttc tttgttttgt   20520
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gtattagaga caaggtttct ctgtgtagct ctgactgtcc tgaaacttgc tctagggatg   20640
aaatgcatgc accccctcc cccagctgaa actgacagtc tgattcccta ttgtgcttgt   20700
gtttcttacc agttcatcct ctgctggaca cttggatggc atcttctatg ccactgtgaa   20760
cagagctgca agctttcatt ttgggggtat atactcagaa gtgggggtac tgggtcatat   20820
gaccagtcag agattgttta gtaactacca agttctctac atatttagaa atactatttc   20880
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tcttttcttt ctttctttct ttctttcttt ctttctttct ttctccttcc tttctccctt   21060
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cctcctcctt cttctttctt tctctcttct tcttcttctt cttcttcttc ttcttcttct   21180
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acagatacaa agttctctga ataggccata aaaatctgag cttactcttg agtaatatgt   21660
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cctcagacag gcccaggacc ctagagctcc tttgggggag gggacacagt ggtgctatga   21780
aagcctgtct tcttctactt actctcagtt cattataaag catttcaacc tgttaatggg   21840
ttccagggtc atactattct gccttaatta aactaatccc cacattatga tcaagaaatc   21900
ccataaaaat gatctgtaac aacatcacac ataggagata aaatgaatta atgtgaatca   21960
```

24

PCT - Sequence listing for submission.txt

```
cacggaaatg aggaatgaca attcctgtga ccctcccaga ggcccttatc aaccatagga   22020

aaaaaaaaag agctgacatg ttgatccaaa tagaggaaag aattaggaaa agcagttaag   22080

gaaagaaaga ggcccttaca gatttacatc tgcccgataa agcccactcc aaagcaggag   22140

tcttgcatga gtgccatgta ccctaactac agagcagcag gggagagatg ctgaagtgtg   22200

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ctccctctcc ctctccctct ccctctctca ttgttactcc tgcttgtgga gccaagcaaa   23220

gaaaatgacc actgaacagt gaccacgtga caagttgggg aaagataagt agaaaagggg   23280

gcgagaagag gggaagggaa ggagaggtaa gaactatgca aagaaaggaa gaaaggaag   23340

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acccttcaag atccaaagag catcttcttc cctgtggccc tccagcggcc cggccttgct   23460

caactctcac agcaaccctg agcggagtgc ttgggtctgc attgcaccgg tggggaagcc   23520

gaggcctggg aggttccaac ctttgtctag aagcacctca tcctccgaga agatcagcac   23580

tgacagagag gtcacccacc tgcctctgag ggccacctcc ccagagccca gagaaggatc   23640

ttacctggga tctgtgggcg gccatctaac ccagaaggca tgggggtgcc tggaaatgcc   23700

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ctggctgaac tgggatcaag agtgagcaca agcttctaag atctcaggct ttcttccttc   23820

caacctatct gctacttggc ctggaaggag gatgcccaca gccttccctg cctcacctag   23880
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25

PCT - Sequence listing for submission.txt

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ccttccatca cctccttgcc ccctctcctct cttcccttcc ttctgctttt cctttcccct   23940
caccccctcc ttttctttct cattcctccc ttctttcatt ttcctctacc cttccttctt   24000
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tatccgcaca ataacctctc tgccaattcc aggcacacag agccaatgga ccagctccct   24120
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cccagagaag tccacacctg actaagcatt ccacccagcg tctgcagcct tctcaagttt   24300
caatccccat ccttcctggg gtggagtgtc cctgttgtac ctttggtaga gatgactagg   24360
gactcatcag attacaccag dacagttgat gtttggatta gcagcagggg tgtgaggcta   24420
gatgcttatt tgccttgtgg catgcaggac acctgtcagc tgcggagaac ggctcgccat   24480
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cagtgttgca aacatggctt cttcagatat gtctccctag ggtgcccccg cttcaggaag   24660
tacggctgag agagccatgg ctctttggtt cctggtcact ttgagttcct ccataccagg   24720
agggatgggt tggagctcag agaagaccct gggcatacag tcttgggtgc ctttgtgtcc   24780
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gtggacactg acatagaact tcgaactctg cagctgcctg tggattacag ggaggtaaaa   24900
cggaggctta ccacaatctg ggaagatttt caaccacaag taagtgatac ctggagaggc   24960
tgtgggtctg ggaacctgat gatgggccca gggcctagga actttctgga ccttgatcta   25020
gatttgaagg ctggagtaca cctgaattaa agcttctgtc gtgagattct gggtctgtgt   25080
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ggtagctcac gcctttaatc ccagcacttg ggaggcagag gcaggtggat ttctgagttc   25560
aaggccagcc tggtctacag agtgagttcc aggatagcca ggactacaca gagaaaccct   25620
gtcttaaaaa acaaaaaaca aaaaaccaa aaaacaaaa caaaacaaaa aaggacact    25680
gaccaaacac tgcagcaaaa tcctctgcaa ctgttttcaa aagaggacaa ataaagtcta   25740
```

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PCT - Sequence listing for submission.txt

```
ataagattcg attagactgt tgctagcttc ctttatgaaa gtttcattaa atacaggatc  25800

ctgttaaaag ccagcatctc ccagggtcat cttggatact tgctttcccc caactcctgg  25860

ggggaaagag agcacacaac ctcggatgag ccatttgaaa tacaaaagtc cttttttaatc 25920

cagaaaaaat ggggaaaagt ccttaaatgc agatgtagca tgcctaattc aacccaaaga  25980

tgtgttcctt ttgtatcagc accattactt aggggcctaa gcagggctcc tggaggactt  26040

ggagctagat ctgtttagcg gggctctgtc atcactggac ctctcttcac atctagtgat  26100

ctggtgtctg tcctgggatt tctgatatgt atgtccctac agcttgttgt gcatgtgggc  26160

atggactctt ctgccaaggc catctttctg gaacagtgtg gtaagaaccg aggctatcgg  26220

gattcagatg taagaggctt ccagccggag gatggagtgt gcctccccgg tggccccgaa  26280

gtgaggctgt ctgttgtcaa catgaaggag gtctgccggc gtgtggctgt tgagaatgtc  26340

gaagtggcct tttcccgaga tgcgggcagg tacttcagga ctccgtgtgc caagtgccaa  26400

acagatggga gagagggatt atccttcaga gtcccttctc tctcctcaag aggctatcct  26460

atgttgtcca tgtggctgct ttggtcacag gcatcctatt tgtcacaggc actgcagatt  26520

aatttaacct cttctccaaa cgctgacagc ccctccccct aagcaccttt cctctcttct  26580

agggataaag aaatacccga ggggagttgg cagtaaggga gtcattgtgg tgaaggtgtc  26640

ttaccactag ttgtttgaaa ggccggctca attctgtcat gaccgcttgc tggtcattag  26700

actctgagcc caagaaccaa tgtctgtctg gagtgttctt aggccatgtc ctttctctat  26760

cagaagagcc aaactcaagt ggtactaggc atgtgggcat ccataaactc atgcttcatg  26820

aaacctgtac ttactgtgtc tggcatcgac aagatctggg agtaatgggg agtttcatgt  26880

ggttgcaggt acatctgcga ttacacctac tacctgtctc tgcaccttgg gactgggcat  26940

gcggctctca tccatgtccc tcctctgtcg cactggctct cggccagcct tctgggcaaa  27000

gccttgcgag tcatcatcca agaaatgctg gaagaaatcg ggaaagtcca gactcaaagt  27060

acagcagctt aagggaagca gcaggggggat gccttcctta gatgaaatgg agtgtttcag  27120

gcttggacgg agaagccagc tgtgctatga gaggctctaa aaaagggaaa cagttacaag  27180

gctgggggtg ggggtggggg tggggggtgtg gactcacaga atcacaatct tactttagtg  27240

tctaaagcaa gaagaaaatc cccaaaggcg gatgcttcat aaaggattaa ctaggggaag  27300

ttatgacctt tgtaactcca aagagccacc aaaacctagt gtcaagacca aatgaactga  27360

ataactctca agtgttcttt gaaaaagatt ttatttattt gtttgtttgt ttgtttgttt  27420

atttattata caatgttctc cctgcatgta tgcctgcatg ccagcccagg gcaccagatc  27480

tgattataaa tggttatgaa ccaccatgtg gttgctggga atcgaactca ggacctctta  27540

agctctcagt catcttccct gctttgtttt gttttatttt gagacagggt ttctctgtgt  27600

agccccgcct ggctgtcctg gaactcacag aaatctgccg gattctgcaa gaaaatgact  27660
```

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PCT - Sequence listing for submission.txt

```
ttacaagatt tcctttgcaa ataaaccaag gacattttac atatgacaga gccaagccac 27720

actaaggcag atcaaagccc aaggtggaag ccgggcgtgg tggcacacac cttttaatccc 27780

agcactcagg aggcagaggc aggcagattt ctgagttcca ggacagcctg gtctacaaag 27840

tgagtgccag gacagccagg gctacacaga gaaaccctgt ctcgaaaaaa acaaaaaaac 27900

aaacaaaaaa agcccaaggt ggactgggat ggcacaggcc accagcacag aacctagctg 27960

cttggctggt gccttggctg gagaccctc tctgtgagca aagagctcct gctccaaacc 28020

ttaggtccct ttgttccagg agtgggctct agtgacactt caggtcactt ggcacctggt 28080

cagacacatt aaaagaaaac gccgggcata cgcctttaaa cccagcactt gggaggcaga 28140

ggcaggtgga tttctgagct caaggccagg gctacacaga gaaactctgt ttcaaaaaac 28200

agaggcccag accccaaccc ccatgagcag ctcttccacc ccctctgcgc ctctccagtt 28260

tctcaagacc ctaagcgccc atttgcattg tatttttgt aaatagcttg gcatcccccg 28320

acaatacaca ctgcatcctg ttcagtcaca gctgatagtg ggtggtttgt atgcttgcga 28380

gccagtgtag aacactgttt ttttgctggt catttaatgg ttgggaggtc tgaagcatgg 28440

ctctgtgttc atctataaac ccgactaata aaaagtcctg gttctgacta cccagagaat 28500

gtgtcaccaa caacacacca gccaaaaaaa ggaaagaaaa aaaagaaaaa ggtgtagtat 28560

gggccctcag cttgtggctt gaatatcttt ttttgttttg cttttttttt ttggggggggg 28620

ggtgaggtgg gtgggcagca gtatattatg aatctagcta gtaagcaggt gtttaaaaaa 28680

acgaataata aattaattct agaacgctcg taataggtga cttagctggg caggggtggc 28740

acatgccttt aatgacaaag ctccgtagga aggcaggtgg ctctctaagc tctaggacag 28800

cctggtctac agagcaagtt ccaggtcagc cagggctaca cagagaaacg atatttcaga 28860

aagattaaaa aaaaaagtg tctcagactc caaggagagc acctaactta aaaaaaaaaa 28920

gacttaattt tatgtgtatt agtgtaaagg tatctcaccc ttagatctgg atcccttgga 28980

actggagtta caattgtaag ctgccatgta ggtgctggga attgaaccct ggtcttttgg 29040

gagagcacac gtgctcttaa cctctgagca atctctcgat tcctaatagt cttttaaagg 29100

tctagtacct ggctggagag atggctcagt gatttaagag tgccgactgc tcttccgaag 29160

atcccgagtt caccgagttc aaatcccagc agccacatgg tggctcacaa ccatccgtaa 29220

gaaatctgat gccctcttct ggggtgtcct aagacagcta cagtgtactt acatataata 29280

aataaatctt aaaaaaaaaa aaaaaaaaa agtctagtac cttcatcctt aaaagcagct 29340

ggctccggcc aggcaggttt ttggtaaact ggaggcatag taccaatcca ggatagcaca 29400

gaaataagac cttcagcgtc atctagtgaa gctccctggg catctggtaa acaaaacccc 29460

cggggcagga cgagattgga aggtgtgctc ttccaacgac cttttgacta taaatccaaa 29520
```

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PCT - Sequence listing for submission.txt

```
tacccattgg gttaggctac tgggaggctc actgggtctt gagttgcctc tgatttgctt   29580
ctgccaccta tgtctcatcg atcagttctt cacccggtgt cctgatttttg tcactgagtt   29640
cccccattct cagtgttcag tgaggcggct acctactctc ccaggagtct agaatgtatg   29700
gcttggttga ttttccaacc caaaccattc atcaccttcc catggcaaag atggagagcc   29760
agcatctcag agttacctgt gggcaaccta acgactcagc accttgcagc caggaacagc   29820
ccgattttcc ttggttctct ctccagcacc ctcaggcacc ccaactgtga agcactacca   29880
aggacaggaa aatgcacgca gcacgcaagt ttctggcaac cccgccccac ccccagactc   29940
acacatacca aagccaccct ggccttttgt caacccaagg tccaggggcc aagcctgtga   30000
agcagccctg agacttgtgc ttcatgcctc ctgattttcc tctagctgag taagtgaggg   30060
gaaagtagct tcttcaaact caacagcaat ttgcatttgg agaaacccgg ctgtcagttc   30120
tcgtgctgag cattcccgag tgacacacac acacacacac acacacacac acacacacac   30180
acacacacac acacgaggct cagcttcccg gctgtcagtt ctcgtgctga gcattcctga   30240
gtgacacaca cacacacaca cacacacaca cacgaggctt agcttcccga ggaagtgggg   30300
gatggttcca gagtgaagag gaaaccaact gggagacaaa ggtgcataca gaattctttt   30360
atttaactta atccatgtgg tactttaact actagaaaaa agcagagtaa tagactcaag   30420
tggccttagc tttagccatt caaaatagac aaagtttctt ttttcataat gtaaagaatc   30480
ccgagtatgt cgcagtaaca ggaataaatt cttacaacag aatatacaaa aacattgaat   30540
tttttttcat ctactgattt tcttttatat ataaacagag ggttttttttt tttaggaata   30600
atttatacac agaaagttat tttatgtaac aaattggcca tattattatc ttttttagac   30660
tttttttttc tttttttaag aaaaaattta acaagaaaac tcagaaatgc attattggcg   30720
atgtgtccgc tccatcgagc cttttgactt ttgttttgtt tttttaaatc ccagaggtag   30780
atgaactctg gcaaaactct tacttcaacc tcactggcat aggaagcaga caggggttgt   30840
caccaggcag gcacctactc cacctgtaca tgtgtctgca cactgcccaa cacccacaag   30900
aaactgaaag accaaaccaa acccacaaat ggttcccaga ccttttttcct gcagtgttag   30960
aaagttccat gtgttttcaa caacggtatc ttgtggaacc agagagacat ggccaataat   31020
gcacggggag ccaaaggaca tggatcttaa tttgaaaaaa ggggggcgagg ggacacacat   31080
tgtggttttt gttaccagtt tgttctgtat tagaaaacaa tggaccttcg gcgttcgcca   31140
ttagatacag gtaggcacag cattcgttag gatctgaggc acatgtgccc acgggctgca   31200
catcagagtc atgtgatcac tgtgaagcca ttccagtgtc ctgaaaccct cccatctcca   31260
tagtgttgca gagctaggac cagccatacc agccagatgt caccatggag tgccatctct   31320
ttgctgggtg gccacacact gctatttcca tggccagcag ttctttccat ctgtttgggc   31380
tgctacactc cacagggaac agtgagtccc agataattcc tttcccccagc aaagggttcc   31440
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                                          29

PCT - Sequence listing for submission.txt

```
aagatcaaga tactgaagaa tacagaagta cttttttaaac cactggcatt cctttttgttt   31500

tgtttttatt tttatctgtt ttattttttt ttgtttttatt tatttattat ttatttttttt   31560

acaaactaga gcagaaagca tgtgggaaag agggtgaacc acaattggtc ctggggagaa   31620

tttcttttta attaattttt ttaagttttt attttttatt tttggcatat tgtaaagcta   31680

gctagtaaac aagtgtcaaa aaagaaaaag gaaacaaaga gggggaaaaa agaccacaaa   31740

cacatatttt tgcacacaca gagagaaaaa aaaagtgttt ttaaattatt ttcggcaatt   31800

ataaactaca aacattttat aaaattattc tatgttctta caaaaatgca atgaaacatt   31860

gaattagttc ttgtaaacca gagcttcgtc aacgactacc cgtaatctac tggacttaga   31920

agccctattg aaaggataat gagtaattta aagaatggtt tactggaaag atgcagacac   31980

aaatgtggac acacaaatca gtgattatga agttctcaca gaaaccaaaa tcaaatcaat   32040

ccctaacgtc atgccccaga ccgacaactc atctgatgag tgtgatggag tctgagtcct   32100

tccgcacgtg acttagctct aaggagaagt ttccagagca ggatgccaag tgtcttatct   32160

gaaaccaaat gcccacagtt gactccccag cctccacatg ctctgacacc ttcagacacc   32220

atcaagtcca aatatggtcc atgcttcttc caggcccttt aaccctctgt cagcaattcc   32280

cgtcatgtca cgatgccggt taccaagggt gcctactgca ccgtcactct gtcatcccat   32340

caaggaatgt tcgtttctct aaatcgccaa ctggtcatcc aagctggaag cccaaagcaa   32400

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tacacagaca tcctgtcttg aagttctcat ttgtaccacc acctagttca aagtggactg   32520

ttaaaagttt gaccatcatc actggttctt aaggggtgga tctctctggt ccaggtctcc   32580

caatgcagct gcttagccca ggaaatgaaa agacatcaga caaacataaa agtaacatta   32640

aaaacaaaaa ccaaagggaa aaaaaaaatc ccaaaccgta aattcattac tgctaaaatg   32700

ggccaaagca ttttgatgga gtggtcctgt ctcctcctgg atgccagtgt ttaggaaagg   32760

agatgctttc agcactctgt ggccactctc agaggaccca acgatgacaa cagagggcct   32820

tgggtaagca tcctagactc ctcacccaca tgagctcagt gtgaccttgc caccactgct   32880

tgcttacctc aggcacaggc actgccaaaa gaggtgggct gctaaggccg aggctccggg   32940

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aaaaactcct gtataccact ccgccatctg ctcgtctcac cgtgatcgct tttctagttt   33060

atgaagctgc ttttcctacc gttgaacagt cccgagtcat aagaaacagg caggtaggaa   33120

aaagagcaac cttgaacagt cttttatatc tcaaggaggg agcctcatcc catctctgaa   33180

tccaatgtta ggacattcct gaaaggagat ggcgaagcgt gggccccacc cagctcaggt   33240

tcagctctat ctccacgcct caggaagggc tgtgtggggg cacacctgga tgttcacgtc   33300
```

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PCT - Sequence listing for submission.txt

```
acctgcatgc tgtgcctcag tggttcatgt gacttcaagc agtgtgagct cctatcagaa   33360

ggggggggttg ggtggggggtg ggctcgagtg aaaaaggcca cgactcagct tggtaggagt   33420

acttgaagct tgtaaagaga aaaatcagga agaggcgggg aacatcagca tgagatcagg   33480

ctagaactgt ggatatgatg ccttgcaata gtcggggcgc gtcagtccag cagaacgact   33540

gcaccctcgt acaagccaac ctttctttt tattgaagtg tttctggagc attagtttat   33600

gacggccact acgctgttgg tgccgtctct ctacttaaag gaaaaaaaa aataacaccc   33660

acgcaaaaac aaaacaccaa caactcggac agtttcaaaa ataataataa taaggaaaaa   33720

aaaaaaccct taaaatcaat tgaatgaact gtagaaatcc agttgtggaa aaccggcagg   33780

tatgtgcgag aggataggcc actatcccag agtgtcacct acagtgtaga agaaaaccct   33840

gatcaaacag tatctcccag tgaccctgtg agcatctagg aacccagaga agggcagcat   33900

tccagcagga ggcgaagggc tcctgagctt aaccgaactg ttaggcagtt tctccatact   33960

ggggggaaaag attagccacc gcggtcccca gctgaagtcc ccagggcctg taagagcagc   34020

tgctggagtt gaggattgca ctgtccacct gtgagcagca gacggatggg tggacagagg   34080

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tctgtagaga aagttctgtt ccaaagtcag ccagctgagg atgggccggg gagcccccct   34560

ccactggcgt gctgtgctca tggtgactgc tgggttgaaa agtaggggac caggtgagga   34620

gaaagaccag agttgcccta ggaaaagtgg gcttttggag acagagcagg aagaggctgc   34680

tcatttgagt tagcgttgct ttaaccccag aatccagcct ggccctctc tgcttcacct   34740

gggtatgtgg cctgcggagt ggctgaggtt accaggatca ttggcctact gtcaggtact   34800

gagaagtgtg agatgtatta tatatatata tatatatgtg atatatatat atgcacacac   34860

acacatgaaa aacaagagtg aggtagataa atgtttgaaa aacaagcccc cccaaaaaaa   34920

ccccccaaaa ctgtcccatc taatacacac atacacagag atacatgtac cctttcctca   34980

gcatttaaat ccataacagg ggcttttcta cagtgattaa aacaggtatc acaaaataaa   35040

ttaaaactcc tacatgaaat accttcttaa taagcttccc ccctccttt ccctttaagg   35100

gcagaggcta ggaagagcca caagcctgaa cctacagaca agccagacaa ctccagcttt   35160

ccttcctgca tctaatctcc agtcacaact gcaaccatca tcatccaaca gttttcctac   35220
```

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SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

```
tcctaattta aatatttcca cccagaagca tctctcgcgc tgtcactgct ctggtaagaa    35280
gtgctaaatc gaaacaagac aggacccctc ccccaacccc actccagggg gaggggcctc    35340
caagcccaga gctccgggat tctggttaag gaggaacagc aaggggctct agggccactg    35400
tagggtcagc tctactccac tttgggattt ccggcccggg agtgggcttt atagcacacc    35460
cactaaagtt gctgctcctg gccatgggga gttggtgtct tacatcttgc tcccagggag    35520
gccacccctt cagacaagct ggttctaaag acaggtgggc ctgcttgtga aggaggtggc    35580
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tgtgtgtgtg tgaaagatca aatattcatt taaataataa tccaatgact attgtctgca    35700
gttaaaactg ctattgtatt cccaaattgg ggtgtgtgtg tgtgtgtgtg tgtgtgtgtg    35760
tgtgtgtgtg tgtgaaccaa agcaaggaga gaaagcaaag tgtgactttc aacaacaggg    35820
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tgtggcatgc cttgccctgg agcagatgct gtgtgcgggg aagcaaggaa aggagagagt    35940
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tgctcacaga gcctatgggt tagagggtaa tgaatggggc tgcagggagc aggggaaggg    36060
agatgtattt ataaaaaagg catcaaacag ttcacggcaa gttatgtcct agaagcatca    36120
gttgccggag aagaggaaga aaaaccacac tctagtgata agcagaggaa gtttcttgga    36180
gtgagcagaa aggaagaagg ggtagacctg aaagtttcat agattaaatc cacaaagata    36240
aagaacaaaa aaaaaatagc agcttttctt ttcctgtaca gatgtataga tgaatatctg    36300
aactgtaaaa aagttataaa actgacatta aagacgatgt gtatgcaaat gtttcacggt    36360
ctaacataga actgagagac ccatgaagaa gtcctagtaa cagaccatgt gaaagctcac    36420
actgcttgga tccactgcct gggcgggcgg ctccaggctg ctgtggctct gaatcccttc    36480
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ctcaggggag gggcaggagg gaggtcgggg aggggggacga ggctggtgtg aggaccacct    36600
tgacccacaa cctgaccttc aagcttgccc atggccactt cctccagaat tcttggggtg    36660
ctgtgggtgg gggaggggtg gagaaccagt tctgctttcc ccttcttcaa ggagggcgag    36720
ttccatcttg tccagttctc ccaaacggta accatgcaac gagacccagg agatgtgggc    36780
tgggagagcc gggcacagtg gggggcctca gcacgtgtct ctcaaatgtt atcatcaacc    36840
agacaccatg gttcatccca cgcctctgga caaagggaaa tcagcgcagg gagtatatgc    36900
gtgtgagaaa aaccaaaccg aaaacaggat tttggcaaaa atggcagcgt gaaaaatgat    36960
agccacggat gaacaatggc ccttttaaat tttggggtga ccctaaaaaa ggttaaaaaa    37020
aattccatct cagtgtgtga atttttttc tttttctttc cttttctttt ttttaaaaga    37080
```

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PCT - Sequence listing for submission.txt

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caatctgatt tttttttttt ttttaaaaaa gaaggcttcc cagatgggcg ttcacaaaca   37200

tttttccact gtaaagcaga aaagagagaa aggagagcgt ggaagtggaa ggggagaggg   37260

cagagaggga aggcagagga gagaaaaagg cagagaacga agagactcaa ttctcgagtg   37320

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gggtaaagga aataaaaagc tgcttgcata ttgaaaaaag gaaggtccca aatgtgttta   37440

ctgcagagaa gccgtctccc gtgggcagca atggcaggtc tgaagatcca ctgaggtaca   37500

ggaggcttgt gaatagattg ttacaacctg ctctcccctc cccgcccccc cgcccaccga   37560

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tcattttctt ctacaaacaa ggccaaggta aaaacagtat aaagcccatg acgtacctcc   38640

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ccagctggca cacaggacag aagagaaagg ctgctcatgc agccaccgtc ctgaccagca   38760

aaggcctggg agtagacagt ggaggagacc ctaagcaagt gaaggtgtgt attgctgaca   38820

cgtgcaaggc catgtcaagg accccaatgc cccagtccca tgggagtggc aaagtctacc   38880

ccagtgatgc ttgcttagag agatggtaaa gccttcccct gaggtccgag ttgcaagtgc   38940

tgacagtgtg tgcagaatat gtccactgtc acgtccttcc cctggaagtt tacagcctca   39000
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                                      33

SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

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agacggcttc cctgcagaga tggctaaacc tgcctccatg ttcagctgta tataataatc  39060
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catactgagc ttccagagcc cagtccacgc agtccccgtt tctctatacc caagtgcaca  39180
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cagggtggtc atgattctga gggaaagggg tacctagcag ctctcaatca caggcgtgtg  39360
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gagatccacc tccaagaatt aagcactctg gaggcccagg gtgaagccaa ccaattacag  39780
cggagccagg tgcagcttgg agcctgttgt tagcggaatt gtaccagagc agagctggtt  39840
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aattaagtgg ccaatgtctc gacggaggaa aacaaactgg accaaagacc aggctaacta  40020
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actaaaagct ctaggcccgg gagtcacgtc agtccccgag agccagagat gtctctttac  40140
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tgatcatttg tctgaagtca cacagggagt gagctggaac ggcgtgaggc tgtcagacaa  40260
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gctccgtggc caggctgcaa tttcctctct ggctgacagg cctagccctg aatagaaaag  40500
tgcaaccggg ggcaagaaca tgagatgtgt ctggccccaa gccccgtggc caggggtggg  40560
gggtggggct gaggaggtgc cacgggcagg gtagggatga ggtgacatca gtaaaaacaa  40620
gccatgtgat gcctctttta aatcatccca gagtcagccc ttccagggct gcccataaaa  40680
ggaagtcttt tttgctctgt gcgatttaag accttgtttt tttttgtttt tgtttttttt  40740
aaatactctt ccacaagaa aactctccag tagactctgg gattaataag ctgataaaat  40800
gctccctcta aaaagcacac tttaaaacca ctggacagct ctgatgagct ggagccgcga  40860
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34

PCT - Sequence listing for submission.txt
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tttacagaat atgtccctct gtgaaggtgc acacctatcc ctctagaagt gagtgctatc  40920

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ccccgtgtct tcagctggac aggctgccat ctatgtgagg cactggcaaa ctgaaatatg  41040

cccaggacct catgtataca gtacccctgc tgccgcctgt tagtactgta ccaggtagta  41100

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cccagttgct ggcacacagt cgatgccagg gaccgtccag cagacactgt cacctgcctg  41280

tgatgactct attcaattta tctcgacaaa accagactgg gattcccagc ctcctggggg  41340

tggagaggaa aagtacagaa gtagtcagat tggactgagt atgtctcagc tgcatctgag  41400

ctggtgacgc tcggctagta aaacgttcaa gttccttcct gaatcccgca tcccgaagac  41460

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gctactcctg aagcagactg gttcatgtgt agggacgacg agaccaaagc atggccagag  41880

aaagggctgt tcctgcctca gaaccacacc atggaagtcc ttcctctacg tgtgagaccc  41940

aacaggcttc agactactcc caagagtgtt tgcttactgt gccaaaaaaa aaaaaaaaaa  42000

atcctttcac agaacacatc ttcctctcat cagcgtctca gccaaatcag ggcaccacac  42060

tccctactgg agcagcccgg ctcccttccc ttcactctgt tcttttctta gaaaggagac  42120

cgatctgcca aggggttct gaatggcaaa gcaaaaaggc ctcctgaatc aatcatttcg  42180

catccaagag cggcctccgt gtgtaagctt cctcctctct atgctgggaa caggaagtcc  42240

actgcctttc ccatagcagg tggctccttc ccaagcatat taaattcata ccaaaaaaaa  42300

aaaaaaaat ccaggcagct ggggatggat caacttcagg agttccatga gtttctcaga  42360

caaatgtttg ctccagcata aagaaaaga aaaaaccaa caatacctct cctgtgacca  42420

ggcccaaacc acaggaacaa aactcacacc tgctcttttg aacggtttct cagctcgtga  42480

gacagtgctg atcctggtat cctaaccaag gctggtgggg cacaccctta cacagactca  42540

gaggcagcca tgctcctact ccatcctttc acctttgccc acatactgac tattctcgca  42600

atggacgagt aggactgccc tgcaccactg aggtcaaagt aaagctataa cagcactcag  42660

aacccagagc ttctctaggc aggcccctg catcctgtac gccttcggag gtcagtttag  42720

aaaggccaca gtggcagtgt tctccgtgaa gatgctgcag ggcacagcag gccacggacc  42780
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                                      35

PCT - Sequence listing for submission.txt

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gagtttgagg caggaagatt atcctaaata cctgggctac actgactcca tccttgttga  43080
ttcctgaatc atagtggcag agcagagggg ctggaaggaa gagtgagcgt gcggtcccca  43140
gcaccaccaa tcctctccag tgtattagag aaatcctctc agtctatgga gtggtccaca  43200
gagaagccac ggcctctccc actacacaga accatcactg ttcctaccgc cctgtagtaa  43260
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cagcgggtaa gagcactgac tgctcttctg aaggtcctga gttcaaatcc cggcaaccac  43980
atggtggctc acaaccatcc ttaatgagat ctgacgccct cttctggtgc tgtctgaaga  44040
cagctacagt gtacttagat ttaataatga ataaatcttt aggccagagt gagtggggcc  44100
gaccggagtg ggcaaccttt gttcccagca accacattaa ggctcacaac catcagtaca  44160
gctacagtgt actcatatac ataaataaa taaatctttt aaaaaaaaaa aaaagaagtg   44220
tcattctcca gacccactga gccaccaaca tcagatgaca aagaaagacc tctactcaag  44280
agagtacaaa taaaaggccc acatgtggaa agattcttcc ccaattttgg caacaccagg  44340
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tgctgtgtcc ccttgacaca gttcctcatg tcgttgtgac ccccaactat aacactactt  44520
tataattgta atctgctact gttatgaggc aaaatggaaa catctgtgct ttctaacggt  44580
ctcaggtaac tcctgtgaag gggcaagggg tcacgactca caggtagaga acggcttctc  44640
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36

PCT - Sequence listing for submission.txt

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taatggctcc ctttcacttt caagccacaa agtgagactg tgcgctctga cacaccttt  44700

ctaccgtaac agttacctcg ccacaaatcc aatggacccc actccgctc ccacactggg  44760

agccaatgtg aaatgcttct ccttgtaagc tgtttatctc agggagtttc tcgagtcaca  44820

ctggctgagc acggaggtgg acgtgacacc acgtgtgtac tgccatcgag tgacaattct  44880

cacaaccaat cgatgcagga tgttattttt aacagaagtg gagcgaggca accatctcac  44940

caaccccccc tagggtgtgc ctacaagcat gtccaaagag ggatgagctc aaccgtgctg  45000

taggtccatg cagctcgaag ggattaagaa gacagcagat ggtctgtgac cttgtgctgg  45060

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taatcctctc ctgtacccac acacaacgga gtgggtggct ctggaaatac atacagcata  45480

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ccgaaggacc tacaggtgga acagaacagg aacagctcag aaagggatgg gaagggccat  45660

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acgactgcac tttgtggaca tcaaaccagc cagcttgcta cgtgtgggac atctgttccc  45780

ctttgtcact gctaaggctt cctatagggc tactgcaacc cagggctgag gtaattaatg  45840

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cagaggacca ggtcccagcc tggccactga cctgagacag ctaagcatct caactatctc  46020

ctgcagggat ttctttcatg ccagcttaga aatactgatg ctaatggttc tccacgcctc  46080

cgcaagaaga atctgatcag ggttcttaaa acaatgggta tcttgggctc tccaaagcaa  46140

ttctgacctg ctggttgtag ggtagggagc tgggcctgga atgtctcaaa gttctgtagg  46200

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tgcagaggtg gctgtgtcag gaagggaact ggggtaggat acactggcca gggggtgtgt  46320

cgcaataaca aagagtccct tggtctagag gctggctgag gtatgaactc atcaggcgaa  46380

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gatccatgca tgcagacact tcagacagac aatggtcaca ctgtcgctca gtgtgaacac  46500

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                                        37

PCT - Sequence listing for submission.txt

```
tcaggctgta tggctagaat gaagaaggct gcccatggca agccaacaca aggcttcgga   46620

tggaacccta gcagggctga gccccacaga agagcctgag gcggccattt tccacttagc   46680

actctgagga tcctggccta agctggagca acagcctctg actgcatctt aacttttggt   46740

tcgcagcttc agtttccttc taggaacaaa agggttttgt cccaactgat gctaagcaat   46800

gtcagacagg aacagaacct cagcaatcag acccaagttc cttgggaacc ggcagtcact   46860

aagacagaca gtgcagttac ggttttcaaa gacctggccc tagagaagca ggtttcctgt   46920

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tttcatgctt tccctggtgc accacaggct ttcaggcatt cagtcacaat cctggccccc   47160

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tcattctaaa atgactgcaa ttcctctagc aagcagaggt tcaggcagag ctgagcatcc   47640

gtttatacgt tctagtgtcc ttgatgtccc cagctgtgtg ctcaaacacc ccagcacttg   47700

gcctttctc ttcacgcatt ttcttattgg tttgtaatgg ctacgtaatc caagtggagg    47760

aaacctgcag gaagcaccct gtgcgcctct ggctgtggca tgcagttgtt acccagagtc   47820

gggggagaat gagtctgtgc tcactctttc cctatcctgt aaggtgatct ccaagcttcc   47880

agaaaaatga agcttagaac aaacagatgg aagtgtggcc ctaggtgtgc cctctcctgc   47940

gacctcatct acacatggaa cagagttctt tgattcgaca gagaagatgt aacctcggag   48000

aggctaattg cagagcagac ctcatcctag agtcgggaaa caaccaggcc gcgctgggtc   48060

atattcaaag gctatttcca atttgcacct gtcttccaaa caagatccaa ggctcttgac   48120

cgggaaaggt tcacgaggct aaagaactga tgtcagtcac tactgagata gtttctctgt   48180

gtggtcatcc gccctttgaa taaaccaacc accgcttctt ctgtgacaca acagcaacgg   48240

gatctcccga ggagacagcc aagacacttg ctgacattcg aggagggggga cgacgtgcca  48300

gggctcctgc ctgccaagaa ctccagttgt attttggaac ccgatgacct ccacacggtg   48360

tttccaagga actgcagtaa acattactac agagaagtct ttgcaccctc tggtcagtgt   48420
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PCT - Sequence listing for submission.txt

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gctactaccg caagacactt attattaagg aagatgcttt gggtcaggaa taatggacat  48480
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aaggaggaga atgagccacg agtgagaagg tccaagctgg ccatggaggg aaactctcat  48960
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taccatgatt tttcaagaaa atatacgccg cacagggtga ggatatagtt ttaaagtttg  49380
gtccaataca cgggaggatg aagaccccat ttacttggta gtgtgtctct actgctgagg  49440
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aggacagcaa acagctgaga tgttcttcac caggctcctg gagctactac ccaacaccct  49560
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tggtgaatgg caggcttgct tttttataat ctcacattac tgtgtcttta tccattttttg  49680
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agggaagagc tgctcaacct ttaaaatgtc ccctcgcacc tctaagtggt gccacaaaga  49800
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gggtgtgtaa tccctgagat gggggcactg ggggacactg aggaatgcag aactcgcccg  49980
aggaggaaaa aggaagtgct taaatctcat ctctgaatta atccagagac atgcaaatga  50040
gaggatctgc tttgacttgc ataaaagggg aattctagaa aacaatctct ctccctaaat  50100
gcaaagaaa aatagaacaa cccctcttc ccaaacgggc acacaatt taattctaaa  50160
aagaaaaatc ataattataa tagaaaatat cctcataaat gcgccacatg gttaagcaga  50220
aaatataatc cttactgatt tggatttaaa atggcaaaaa gcacacgcac acacaaaagc  50280
attttttccaa ctgtaatgca aaatgggacc aaagcagcct ctcggagttc ctggctgtgc  50340
```

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PCT - Sequence listing for submission.txt

```
tgagaagggt gcacagcagg gtaagatgag gacaggggca caggcttgct gtcccagccc   50400

gcctcctcct ccagctctgt cccaatccac tctcactcca caggtgggga aagatggcac   50460

agggagggaa ggcacctgcc tcaggccact caggagcaca gtttcctctg aggactaaaa   50520

tctagatccc cacacataag ggagggatgg gaggcaggaa ggaccacaaa ggctggttaa   50580

gaggatgcgc ctcttatcta gaaactctgg ggcggggtat cctcttaagg gctgcccacc   50640

aagctaggct cccagggctc caaatatgag tgtacaaacc cagagacagg ctgggggtat   50700

cttcagtaac tccaatgact gacatctgtt ctgtaacaca gctgcatgcc aacacccta    50760

actcctgcaa tcagcaaaga agagagcccg actttggata cctctctaga gatgacaccc   50820

atcgcttact aagaggccgg aatggctcat gcaaaaacca cttctagggt tgaggcaagc   50880

agaacatctc caggacacaa gctcaagagg cggccaaagg ttagtggctg atcgcttctg   50940

ctacatcgtc tgtccctctg cttgttctca ggatggacac ttgttatgtt tctgacctgc   51000

tggcctatcg cagtaggaag gtaaagtata tgcaggatgg ttttctgagc aaccttgtta   51060

ctactttttt tttttttttt ttttgaagta aaagacaaaa aaacaaagcc aatatacaag   51120

ctgtaaggct ggggagaatt tctagccaat gaccagagat gtaatgcaat cagtgtttta   51180

ggatcacaat gtgttggcag caacaaggta ggctgagcag ctaaggtcat ggcaggaagc   51240

tatgcacgac agaacggcca agtgcttgga gctaccactg aaggatgcac ctcagtggct   51300

taaccagcag catacatcag gccctcggtt caattcctgg cagcaggaga ggaggagaga   51360

acttagagcc gaccagtcct atgagtgaaa agcagtcagc agtgatctcc cgcggactga   51420

catgaccacc atataccctt cctgttacac tatgcagggt ttcaccatag gggcacctgg   51480

cctcttagga accccatggg cctattcagg gacaatgctc tttgtaagct gagaaacttg   51540

aggggtggac tggatggtga cattctcctc aagccaaaac cacttcagga agcaagctgc   51600

cccgattatt tctgtaacgt ttgacctggg gagcagggcg ccaatctgga ctaccatgtt   51660

aaggtgctct ccgggttaca gccaggaata gacagtcaca ccgactacat acatctttgc   51720

actcaagggc gaggcactgc tcctctcgga cataatgaaa atctctccag tggcagacta   51780

atgactgcaa agtcccctca gcacctgtga gttcagttta gcctgtgctc caatctggaa   51840

agcaaaggac acacctccaa ttttgactgt gaaatcttcg gctaccatgc agttcctagc   51900

agcaaggtct ctgtggacga acttgttggc attgaggtag gccatgccat ctgcaatctc   51960

tccagccatc tggatcatct tgcttaagct cggaggaatg aggactagat tattctgctg   52020

cagattcaaa acaagacaaa gccatgagca acggagacct ttcccccta acctcctgta    52080

ggtctacact aggagtcgta aatgcatatt tacttagtct gagtaccaca ggtcacctgc   52140

agggagtcag gacttgctaa gaaggactag cacttctagg gaccagcaat ctcttttccc   52200
```

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PCT - Sequence listing for submission.txt

```
accccctccc atgcatgcat gtgcatggat gtgggggcct gaagcttatg ttgggagcta   52260

ccttctaccc actggttgag gcagggtgtc cctatcaaac ccaacctggt caacatagat   52320

tgctctgggg atcccaactc atccttccaa ggctggaatc acaggtgtgc tgccacacca   52380

gcccagcctt tacctggctt ctgacgacct gaactctggt ccttatgcct gtgaccaccc   52440

cctcccccct agtcttttct atttggagca ggacaaaaat gatttgaagt gaatcagcaa   52500

gtttaggcat taagcattct cagctccagc tagtttccat gttcctttgg cttccgccat   52560

caccaagtgt gagtaagagg aaggacagag aacccgtaca aaggccacgt gaaacagaca   52620

cacttcctaa gtggattacc acgagctttg cttcccgtgc aagctgccag gacttattcg   52680

tcttcattcc cttcttctaa ggtacaaaga taggaagact aatgctttcc tcttggatta   52740

ctgttttcta cgggcactga ggataaccac agttcaggtg gagttcacct tggaggggac   52800

caaggacact gagcagcaat gaggaccaat atcatgtctg aagaggaggg caagatgctg   52860

ccttaggaac tgaaaagaat taacctaaga agtggtaaaa tcataaacaa acaaacaaac   52920

aaacaaaata agataagatt tatgtctaag aggctgatga gaatggctta gtgggaaagg   52980

tacctgctgt caagacaggg ggcctatgtt catgtcccaa gacaggtatg gtaaaagatg   53040

aaaaccaact ccctcaaggt ctaagtaggt atgcacatgc atatgcatga acacacacac   53100

acacacacac acacacacac actacacaca tacaaacata aaaaattccc aaagctccgt   53160

cacccactc ccatgtgcaa aaccaaccat gacccttatg cctcagtttc cctaactgaa   53220

aaccttctca tacaacacta tgaagccatc tcatttccta atgtatctca agtcacagga   53280

gagcatgacc aggcttggag atcacactat ttgggctagt atataggccc tttgtgctct   53340

gaccacgatg aacactcaag agcattctgg ctcttggcca gggttgctaa gttctcagca   53400

gatgccagac tctaggaggc cagcaacagc cctctagcac gtccaggagt actctccaga   53460

cgacatggca tgtgaggacc aagttgagct catttatcta tttaaccatt ttcactctga   53520

tccagggtct cttcctataa tctaggggat gtcctcagag gatgtgccat cacaggtgct   53580

tccttgtcac gctgaccttt agcaccgtta gggtcttaca tacacatggc aaagcaggac   53640

ctctgcagtt ccgtgacatg tacttatagg ctcatgacac atactgcagt gtatgtgtgt   53700

aatgttgtgt aactgttcaa caaagagctg tcacttaaca tgtgaaaaac aaccaacaat   53760

ggggacttaa ttatgtgcag gaaagggctg ggctgacatt ttgtcagttc atggtaatat   53820

gttgtcattc ttttcttcat ctcgagaaag aagaaatctt tagttttgtt agagcctctt   53880

aaggtgagca cacatccata cacttatcta agtaaataag caaacagcaa tgggggagg   53940

tagaatacgc tgaagccggg gtgtatacac tgaagctggg tatatatact ggagctaggg   54000

tatatacact gaactgtgga gtatacattg atgctaagat atatgtaagt tatttttaa   54060

aaaattctga catgagttag acaaaattta gatctgatga atttaaagat taagttttac   54120
```

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PCT - Sequence listing for submission.txt

```
ttccgaaaga gactttcgta atccaacctg tctctttaca ttgaattaaa attttgtttt   54180
atgtttgtgg gtgttttgcc tgcatgtgtg tttgtgcact acctgcccac ggaggcccat   54240
ggaggccagc agaacagtga ataccgacag ttatgagccg ccacgtgggt gctgggaatc   54300
cacccagggt tctttggaag agcagccagt gctcttaact gctgagccat ctctatagcc   54360
ctttctctct ctacatgagg aagcggaggc ccagaggcat ctgttaactg aggactggag   54420
gtaaccaatg gcaaaaacag ccccgagagc acaagttacg ggtttactct gggcatgtgt   54480
caaaggcatt aagcacattc tgatgttagg aggtgcctta aaggaccact ctccagtctc   54540
cttctgtaga ctgggtatta ctggggtagg atgctgctgc tgggagaaac aggcatagct   54600
ttgtggctct gctatcaatg catacaccgc cttgtggctc tctcctgaaa cttcagaaac   54660
acacatgagg acatttgtga acaggtactc agaactaaaa tgaaggaacc atccatcact   54720
tggtagatga ttacgttgtg gaggaaaaga aaacgaaagc ttctacagag aaggggagca   54780
aacccagaaa gggcccgaga agaggaagtt cccccttacag cgaatgcaga gacaagctgc   54840
ttagttagcc acaggtatca aagccagggc cgaagtgaga gcctcagagc ctgaggcagc   54900
cccatgaaag gcatttggtc cagcaatatt tctcaacacc cccatcagtt aactcttagt   54960
gaggacttag aagccaaact taagccaggt gcttgtggtg cataccttta atgccagcac   55020
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gttccaggac agccggggct gcacagaaaa aaaaacaaaa caaaatgctg tctcaaaaaa   55140
caacaaacaa acaaacacaa aaataacaac aacaaaaaag aagtcagact cacatatgct   55200
aaaaagctgg ctgtgggcta acacaacaga aggggacact ccacagtgac taatcaaaaa   55260
attacacagg acctactcag gttcacagtt tgaaaatctc actagcctta agcagaatca   55320
tgcagctgga atggttatca tttaaaagcg caggcacaat actggcttat tgcctagcct   55380
ggggagtagg ttcagggttt gagaagtgtc tgaagcagtg tcggggcaag gggagagcag   55440
tgtgtgccat caaggtaagg atagcatgct cacatgtaca cgtgtgtgtg tgtgtgtgtg   55500
tgtgtgtgtg tgtgtgagtg tgtttgtgag tgtgtatgcg agtgtgagag tgtgtgtgag   55560
tgtgtgtgtg tgtgtgtgtg tgtaatgggc tcctgaggaa acagtggtct cgtgcacaga   55620
ccgggctgcg agtcactctg gccaaaacct ctgacaacct gaagagtgac ctttattgag   55680
tacttactga aaaggttacc agccacggtc atgaccctga ggtaaagaag aggctcaccc   55740
cgaggacctc gagagtaaac gtatgctagg cagtcaagtg tactggaaag tcagtggggg   55800
aggccagccc ggcctgagtg ggaagctgtg ggaagggttg gccatgacac gtggtagagc   55860
agctgggggtt ggtgtaagat gtaggcaggg gtagcgggga tgcagaaaca agagcacaga   55920
gatgctggag gttgaatggg tgggatgcag agacagacct tccaaagatc ccagtctgcc   55980
```

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PCT - Sequence listing for submission.txt

```
tacacttgga caatcctata tagagggaac tgacaagaaa gcatatctca aggcactcaa   56040

ggctgagaag caaatggact taaagacacg tttcctacaa gccagctcct gaaaaaagtg   56100

gaccaagcaa gataacacag cgaggaacaa aactgacctc cacttctggc ctcagagacc   56160

ggagataact tttgagatca ccgcgtgtca ttagttccat gatgaccagg gtgggctggc   56220

cttgggatac cacacccagc aaccggacct ggaggaatca agaaaaggac tcagagggg    56280

aggggggcat cccacatgat gacctacgcc tctcggaact gggtggtgct ggggcctgta   56340

gccaggagca gagttctggt gggagggcga gggcgaggct cccacctcaa gggtctgtgg   56400

gtggcaagaa tgcaacgggg aaactaccca ctgggaagag ggcaaggcaa caattcgtag   56460

ctggccaagg acatacaggg tggtcctttc tgtccatact ttctgtccat gtctcatctt   56520

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gttcatcctt gaccacaccc ttggccactc cttcatagac catcccaaag gacccttgtc   56700

cgagctcccg gttcatggtg atcttctctc gagctacctc ccattcatca ggcacgtaca   56760

ctagtaacag acaggatgga aacggccctt agacagagat tacaagatgc tgttccctaa   56820

gacccaccaa ggagaacatc aaggtacaaa cagtccagca cgggtactca atctctgagg   56880

actccatgac actttgaggg tggtactcgt agctaagaac cagaaggaaa ccaagaaacc   56940

taagatagga aaaccaaatc aaaccaaaca acagtggttc cttttcata tccttggcaa    57000

aaccccaacc caacaaaata aaaaaagcaa attagcccta agagacaaag aaagtgggac   57060

ttctgttttg cctgtcttca tcaagggatg gaaatgtagg tcagaagggg agaacagtgg   57120

gaggggaaag gaccaaaggg ggtcaaatct cctcctccct ggatgaagcc agaggtgaga   57180

aacatcctct gcatggcctg ggtgccagtt tacaggccac ccagccccac tgtaggcctt   57240

cagcgcttga agtcgtgctg gaagtaagac atatactgca ttttaaagac ttgcttaaaa   57300

caagtaaaaa aagataactt ttaaaagatt ttaaaattta cgtatacatg tgaaaatctc   57360

tctctctctc tctctctctc tctctctctc tctctctgtg tgtgtgtgtg tgtgtgtgta   57420

tgagcacaca cacatgcaca gatgtgaggc accaccgtg  tttgggtgcc tgggaaaccc   57480

agaagacagt gttggcttct cggacctata gttacagatg gcgggaggtc tcttcacaga   57540

ggtgctggga actgaattag agttctccag aaggtcagca aggctctcaa ctgctgggcc   57600

catttttttt tccagctttg tattccaaag acttggttaa agcaagttta aaaagatagc   57660

ttttatatta actgttggat gttgtgggct aaatgaaaat ctaacagat  ttatctcatc    57720

agcttttaca cttaaaaaaa catggctact agctgggtgt ggcaacagga aactgcagtc   57780

ccaccccagc ccactgggca tggaggttgg agatggggtc tgctgaacta aaggcatctt   57840

cagattgtgt ttcaaaacac caagacaatg tgtcagccgc ctgggatgtc tatcagttca   57900
```

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PCT - Sequence listing for submission.txt

```
cgcacttcat tccacttctt ccatagccat gtccgacaac aagctcaagg tggctgagag   57960

ggagaaactc agtcaacact aaaggcagag actcaagaga agagtcctca gccatcaaaa   58020

gaaaccgcag aaaaggagat gagaggccag cccccacccc caccccggca gagcgctgag   58080

gtaggtcttg tgcactacaa gcactgtctc cctatattcc tccatacagc tgtttaactc   58140

tggaagctgc agaggttgga tccagtttaa cacaccctgc tgcccctttc accgagatct   58200

agtgacgata cagactgcct gcctttttcca cctgagagga aggagaactc acacgttgat   58260

gaagaaaaaa gcagggttgg gagatgaaac ccagggttca aatcccagat gattcaaggt   58320

gctctacagg ctgtaaaatg cagtttaatc ccagggctgt gctgtgttgt ttttcaagtg   58380

atttgactta gtggaatgca tactgtttta aaaccatcaa ttttgtgaat ggctgttttc   58440

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acacaggtga agcctaggag ccccccttcca ggggatctct agtgagggaa gtgagcgctg   58680

ggatggaggg ggactcagta gtgaccccac ggctttggcc tgcactctgc aatgccagga   58740

acctccctga cacggacctg aacagaattc cttctccagc ttccattttt ggttatgctt   58800

gatctggttt gagaaaaata aataaacgaa tagttctcag aaggaagggg gaagagaagg   58860

aaagaaaata agagaggcaa gtaagaaaga ccaaacacag gctccatccc ataacgccag   58920

tgggtacagc gagaactgaa atcatatcaa attaatacgt aagatctgga aagagaatac   58980

ctgctccatg agaaccataa cctaacagag ttactgacag ccctgtctaa cagaggatgg   59040

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aagaatggaa catacatctt gtggtggttt gaataggagt ggcccccaca gactcacaca   59340

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tgtctcttca cagcagcaga acactaagac acatacttat ctgtctactc acttactctt   59700

acttactggc tgatttgggg acaggactgc tctatcttgt tcatacttgc cttgaacttg   59760
```

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PCT – Sequence listing for submission.txt

```
ctatgtaatc caagctagcc ctgaattgac aacttttctg cctcagtgtc cccagtacgt   59820
ggattccagg tttgtgtggc cacatttggc tcctgtgcat gtttttgtat ttcatggaat   59880
atgtatgtct ggtaatttct caactagaat tctgtcttcc atgggcctca gacaacttgt   59940
gaccctgcag aggctgagct tgctgaggag agcagagggg gaaaggtctt tataacacct   60000
ctctgtaagg atggggacca ctgtctccat ttattacctc taaggatcca ggctggcttt   60060
taatgagaat caactacacg gcttgcttgc tgcagagcat ggagttaaaa gcccatcaca   60120
tccattccct gggaggtccc tgaagttagt ggtctcaacc ctttttctaa actcaatcca   60180
gctgccgact ttagccagag tacctcagct ttgccagcca gagctgttca taaacttcgt   60240
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gcagattaac tctgggagaa agacgttttt aaagcacctt tcagatgcaa tgtcactttg   60360
tagctctttg aggcaaaagg cttgtgctgc tgctgtgctt gtcaaaaggc caaacaaacc   60420
aagtgcagat gaggtgacag tgttctcacc tgttgacctg ggtagtgaca agtttgttct   60480
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tttgtttgtt tttaggagaa agatagtctc cgtaagtaac tatgtaacta tgctttcaag   60840
tgtggtgctt acccttctag tgtatttct atgctttata ggcacaaacg tatgcacata   60900
tgcctactta aaaataact ctgcaagacc ttttgcaaac agaaataaca tcattattct   60960
gcacctgatt caaattcaga agaggctgtt cttgactggc tttactatac acataatcca   61020
gttataaatg attaaagaaa ccatagtaaa accatacgca cttacatggt gcttttaaat   61080
tacaaagggt tttctctttt ttttttttt cccatgtgag caggataatc aatcggactg   61140
tgtcttatct gggccgcatc tacttacact tctggagcaa agaaacattc ctcctgaaca   61200
aactcctgcg ctgcacagac ccccatctaa ccagattccc tacatagccc agcaacctca   61260
cagctagctc ttccatacac cacatcatga ggattcagga ggaaggcttg ggatgtccct   61320
tgtgcagact tcccacggct cagctgtggg agcctgaaca agtccttctc agagattctt   61380
tttttgcctg catctagata gacatgagaa agctccaagg gctaatcgag gagaggaccc   61440
ctccccagct tacttagaag gtctgaagcc aagcataagc gctaggggaa aaaaagagac   61500
cagtagctaa aacacaggtt ccgagtcaga acttctgagc catttaatta aatgactttc   61560
attagttact gccaaaggga atgtaaatgg gtgcataggc tgtatgaccc taatcaggat   61620
agaacagcag agggattcca agatcataca acgctatata gccctcactg gccagggaac   61680
```
                                      45

PCT - Sequence listing for submission.txt

```
gcctgcagcc ccaccctgag ttgataccca ctcaggatgc ctggctggct acagcagtcc  61740
tctgactaga cggtagtaat tagaatgctc cttttcactct gatgccacac ttcaagcggc  61800
taactgaact gcttagcaga ccggccaccg gcatctccag agcctggttt ctactggggc  61860
atctgagagt cccagaatgt ctgacagtca ctgagtgcta aagatgttat taaaagacaa  61920
gaaggaaatg gtaccaaagg cagatcctgg gacaaaggta tctcaaaatt acgcaacgct  61980
tttctccagt cagcacctga cagctcccat attcccacac cttggccagg acgcttacca  62040
tcagctgcgc tgaaatactc ggggttcaca gaagcataca gcactccatt gcccaacctg  62100
ctgttatttc tgtcaaaaaa aaaaagatga aaaccaggtc aacaaatccc atctctatac  62160
atttctgtaa atacctttc ttttcctttt tttctttctc acgagttatc ttgagcaagg  62220
gacgcaaacc atgatcactg ctgacgggac ccttgcctgc actcctgatc caggccccgg  62280
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tttttcccct ctgaagaatg tctgactagg aactctggct gtccagtctg catggtattt  62580
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tacgtcgctg cagagacaag gaagaaacag gaagacgtca cgcacgaggt gaataactgg  62820
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ctccctcatc tcacaagagg agtcttcgag gagtcttcta gtgctgggac aagaccagca  62940
gacaaactga attgtttgga gaaaggtaaa taaatacaga ctgaagcaca cactccttta  63000
aagcactgca tattctgaat acagcaagta attctgaagg caagcccttc ctgtgtgtag  63060
ttttgtggaa gtttagctga aggaaaatga gcagacactc acacacttac tagttgctca  63120
cgctattctt atcttttaag aaagtccac agacagcttg ctcgccactc ccgtccccc  63180
aaagcactgg atgacactcc ctgccaatgt tgctctgagt gttctacaaa tatgtaaaac  63240
caattcaagt ctgaacttgc taccagtacc tgggtggtaa gtaccacagg atggcctcca  63300
ggggttcagg tctacacctc tgaaaatcct gagaattctg ccagattcaa gaactcagtc  63360
tgtggacagg tggattaaca tggatgtacg ctgggcatag ggggaagaag agatggggga  63420
gcgagggttg cttcccctag ggaaacggct tcccgtgcag aggaatgtct tgcagagtgt  63480
attgaatgat gaaggggttt ggttccagct aagtggtttc cgccccattc ttcagattga  63540
```

46

PCT - Sequence listing for submission.txt

```
gaggagtcag tggtcagcag ttaagcctat gaactgcagc agtgaccagg atattgagat 63600

gttcctcagt atgtaacact ggcaccttga tctggggaca accaacagct gtctaagtgc 63660

actgaaggcc tgagcactgg gaggaaattc ttgcccgatt ctgtaaacct agctgactct 63720

ctgtagtgtc gtggacacta gagaagaacc tgctactagc acttttctga agcagtgagc 63780

ttctacccac agataactag ctctcaggcc tcgccagaga agcctctttc tgcagcagat 63840

ggaaaggatt agagaaaacc atgactggtc aaaatgcagg gaaccactga ccatggggta 63900

cccatgccca actgatgata gacccacacc acaacccca caacaaatgc tcatggaaca 63960

ctgcaaaata agtgcgtggt acgattctaa gatccagaag cccagggtgt ctgctgaggg 64020

atgccacctt ttatgtaaga caccacccgc atgcgtgaat cccaacaacg cggttaccta 64080

aacttgcgta atgacaatac cagttcacat gctttgaagt gtggggaatc tctgaagccc 64140

cacccctaga tgagaagtta ccagcagtta atggctgctg agagagaagg aggatcagtc 64200

tttatcaggc ataagcttgc tgataggtta gccaatccca cgtggtcatc cctaaacaca 64260

tacatgtacc agtaacacta aatgagcttg gcagagcatg tgtgtatatg tatgtaggtg 64320

tatatgcata tatgtatata gacatatatg tatcaatgtg cgcacaagtt gcttagcaac 64380

aataattaaa gtagtcatgg aactgagaga ggtgggcatg gaagaagctg ggagagggag 64440

gagccagatg gtgtaaatac agtactcatg tcagaagttc taaaaggcta aaactaaaac 64500

aatgaagaag aagcatcagt gaactcttcc aaggccagac tgaaaacgga ttcatgtact 64560

gggaagatga gtgtgtctga ggacacactg ggggcctctg cacactgcca ggtctagagg 64620

agttaaggga acgtaccagt ctcctgtggc atgctatgca tcgctccagt cagacctcag 64680

gaagaaatcc ttttccataa gcaagatcag agaggcgtcc taactttgcc agggttgcac 64740

ggataactga caagttccaa agtcagagcc tggctttcct gcagccctgg ctcagaacag 64800

ccgcaacccca gtaactggga ggctggattc ccgtcatgta ccagaaagaa tcagtaagac 64860

tccagttaat atgggaaaac aaacaaacaa aaatgagtat gcggagaaga agaagcgaag 64920

ggctgtgagc tttcatctga gagcccaacg gaatgcagat cagggaatga aacggaccga 64980

agtgcctcca tgaaagcact ttagatttca ggcttataag gagtctatag caactattgg 65040

acaccaagt tgacatgtct acacaataag gatggcgttg tgggtaaaaa cacttgctat 65100

gttaccctgg caaccagaat tcaatccctg gaacctgaga atcaactctt caatgttgtc 65160

ctctgacctc tgcacatgtg cacaccaagt acacaccaac agtatagaga tgtctccttg 65220

gaaaggagct ggggactcag tggagacatg ttcctggacc gcgagccact caccaatggt 65280

tggtctacct ctaaactcta ttcttaatcc tgaaatacta caaaagccaa aattaagtct 65340

ttttcaaaat cgatgggatt cagcacttc cagtttctaa aagtactccc acgtgcgcct 65400

ccctgccaga gagaagctcc gagctttcct tttcccctag gagaattcgt ggttttgtgt 65460
```

47

PCT - Sequence listing for submission.txt

```
tcctgattct acgggtcagg ttgttctgtg ttcttttttga gtttcacatt tcaacaggga   65520

cacagaggaa ctggaacaca tccagaagga caaaactgac agaaaattgt ctatgcaact   65580

ggctttcaag aaagggccca aagacctgag aatatttaat cgggagggaa gaagtctgaa   65640

gaggagttta atagaattca cgcaccaaga tttccttaaa aacagcaggt gatgccgagc   65700

tttcaatgtc cccctctgag gattagaccc aagaaaactg tgctaaactg cgtcttgtcg   65760

gacaccggga aaatttccca gaagccaaga gcgctagcac gcagcttcaa tcccctgtg   65820

ggatgtgcca acttccactg gagaaacccc attagaggac ctcttaagag tccccagtgg   65880

cattgcagtc ttagctttac aaaggcagct acaaacatgc cctctcctaa gaaaagccag   65940

actcacttag cttcagaagt caagactgct ccttcagaga acaccaccca atttccagaa   66000

ctccagtgtt ggcttagtag cacgacgtgc tacagataag cggaaatgta ccccaaggca   66060

gagatgctca gggcttcgtt gccggcctgt gacgttattg ggaagtagtg gcaggtaacc   66120

ttaggagctg ggttctagag gaagtcaggt cactggaagc aggtgtcctg tgagagaact   66180

gtgaaacccg ggccctttct gccttttgga ggtaaccagc ttggttccat catgtgcttc   66240

ctgcttctga cattttgtct cagaacagcc caaaagtaat agaatcaaca gacagagcac   66300

gacaaccccc gaaactgtgg gggccacccc tctaatcatc tctgggtttt gccacatcgg   66360

agagctacag taacatcaca atggagagtt agcacataag ctaactgatg acgctaggct   66420

acccagaaaa aaatgagaaa attcagagtc tacctgacag aactctcagt ctcatcatct   66480

ctcaatctag acacagtagc agcagataca gggaatccta gcttcctgct tacggttcta   66540

tttacttctg tctttgtgca gtcacgatga ggattttcga atgtcttgcg tatctttgaa   66600

tatctggaac tggctaggtg ggctatcgaa gtgtgaactg acataaagtt atacatgtat   66660

acatatttac cacatacaac atatcttaaa gcatgtgtac attaacccaa tcagcatcag   66720

cattaagtcg cattgttacc atttctgtgg tggtaacact ttcttagcaa tattcaataa   66780

tgctttatta accatagcta gtgtgttata aagctcactc ttctatctac ctaaaattgt   66840

gtacctttg agcaacaccc cctaagttat gttcccctgg taacctgcaa gactctgagt   66900

tcacccttttt agatttattt catatatacg tgagatcacg tggtgtttcc ctttctgcac   66960

cttctattaa cagtattcca ttacatatat ggaccacatt tttacccagg cacctgctgg   67020

aggatacttc attgtttggc tactgtgact agtgggccaa aaaaacaagg ggggtgtaga   67080

tttcaacaca actaacttcc atttcttttg gactgggatt gctggatctg ttgagacctt   67140

gtctgaatca agaatccaga agagaccacg aagaacataa gacattagga aacaacagtt   67200

ccccacaccc tagattctag cctcaaagct gagctgagat tttggggggt ggggagtgca   67260

aaaggaattc acatttgatc ctgtatttgt ttggatatta catgaacacg aaataatcta   67320
```

48

PCT - Sequence listing for submission.txt

```
aaaaaatttg gcttctcata agacacgtaa aaattcacta tgtattattt caccaaaaag   67380

actcaatttt ttttttttt cggtcaaaca agcatgcagc ccttgcattt aacatttcac    67440

aacatttact tttaaatctg aatcctaaca gctcactcag tggtttctgt gaactgtgaa   67500

acattatcca ctagggtggg tctgtgcaaa ataacgcaca gagtatcttt caatgcatcc   67560

tggtggatgg tgaagagcac agaggagggg aagactctga ctgggatgtt gtcctgcaga   67620

ttcctgtccc ggagcagtga caccagacga tccctgggga gacgctgagc gctgggtcac   67680

cctcaccgac caggcaggag acctgatact caactcaatg ctttgcaaaa tgcctccaca   67740

cctgagccac gatgagaaca agatatcttc taggttgtac gatactcttc tgttactcac   67800

aagagaaggc tccaaggctc agcaccttcc cagctctggg atgtgcgtgc gagtgcacgt   67860

gcgtgcgagt gttggggtgg ggggaaggtg atggtggcac agatgtgtgt ccactgtgag   67920

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ctgaaagcaa aggtcaccaa tggaccattc tggctagcta gggatctgca aaactttgac   68040

tgtcgatctc ctgagcaccg aggaagcaca ctaccgcccc tggtttccgt caaggacttg   68100

aacttagatc tttaagcagg cactttccct agtaagccac ctcctcaacc cagccagctc   68160

tgttctaaca gaaaaccaga gagccccaga agctcagggc ttctgagttc tggcccagcc   68220

agctttgaaa tttaccgtgc gtctccctca ataagactta cttttggcgg ggacatagaa   68280

gaacacagga tctgtccatg acccattccc agagagggag gtagcctgaa tccgggctgt   68340

atagttccct gggtttagac ggttgagttt ggccctccg tacttcctgt actcctgtct    68400

ggacacacat tcccgctgat cctatggaaa tataaggcgt taatttccta caagcatggg   68460

tgagatctga catctgtcaa ctcaagtcat catgctgtga ctccagctgc ccaacctctc   68520

cttacattgt ccagagtatc aacataaagg aagcaaggat accggaaaag tggttttcag   68580

gttggcacat ggaaaatggt aatcaaatat gttggtaatt aaatcaaata tgttggtaac   68640

tccagaggaa taaaagatca tcaagacgtg tctagtctgc ggctggaggc ctagctacag   68700

tttcattgtt tgtatgaagt ccagccagct ccatgcaccc aagttactac tcaataaaga   68760

tggcgttgct aggaagacct ttatccttcc cgactgccca tctttctccc ctgtctgctt   68820

agcagtcagc agacaaccag tatgccatag cacgtgctct cagcgctgaa acacatgcag   68880

ctgcaggcca tggtatccct cttacctcga cttgcgaccc gtatttaatt tcatacatta   68940

ggatcaatcc gttggggttc tcgggttctg gccacttaa aaagatggag ttttcgggtc     69000

ttggctccca ggtcaccgga ccagggatat catctgctcc ttctgcataa ttaatgtaaa   69060

caagcagtca aattgggttt aggtccccag aaagaatgat aaacggtgtg ctaacttgag   69120

aacaactgtt cccccaatcc ttgtatatac aggactctgg acaggggacc ttgtaggagt   69180

tctttcctga gatggctgct ggcacagcgc ctccatcccc tctgactgaa aaaacctgtg   69240
```

49

PCT - Sequence listing for submission.txt

```
gccaagtaca agtgatcacg cctgaaaaac ctatgtaaca ttctccaggt ccattttcct  69300
acctaaaaag ttaaaaaaaa aaaaaaagaa cccttcaaac agagcggccc tggggaaggg  69360
cagtgagcga cagcgtgctg agcctccagc tgtggcactg acacattcac agcccacacc  69420
ctcacacggg agggaggaag ggccagttcc gaggctggcc tctgaggcag ctgttccggc  69480
cactgtctct tccagccacc gctggcctca cttctggtgg tgaaccacag ctgttgggtg  69540
acagctgatg acagccgaga gaggcctggg gagataagct gttctctgtc tcttctagga  69600
ttgggaaact gaggcacggg tggctgaggg ctacacggga gtgccaaagc cgatctcaga  69660
agctcttact gccccagttc ccagcatgct ttgttctccc cactgactga cacctcctcc  69720
acgaatgaga agtggcaaat ggctggcagg gtgacaggca gtatctaact gtaggaggag  69780
gcccacaggc tgatctagct gaccacgagg acaacgcttc ctctgcatca agctttgaga  69840
cctggagggc ccctcacagg tctgtggtgt gctaaggcct ttgtgctctc agtctgtagc  69900
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aatacgatgt gttgcttcat tgcaagcccc aaagcagtga gaggcaagtg cctgtggtct  70020
aaaactcctg aaacactgag accaaaataa acctttcctt ctggtaagac aactgccttg  70080
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gtgggtgtga gcatgtgcat cgtgaaccaa gccaaggagt gagagccctg aaaggggctt  70200
gtaaagagtg tctatggtta agtctggatg ggagctggca ctaggaatac attctctgtt  70260
ccttaggcac ctgacggacg acgttgtgta ccaacaacca cacattcgta ggcctgaatc  70320
taagggctgt cagcctcccc cgccttggct gtaagttggc ggcggggcta cctgccgtac  70380
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cgtggttgca gctgtggata tcgatgcggt acagagtgaa aggccggagg ttggagatga  70500
cagtcctctc cttgttatcc actctgctct caaagaaagg gtactctgtc tcgaactcct  70560
ccgggtctgt gatattgtag gtgtcagcta ccgtggtgtt cctgcttcgg ctggacatgg  70620
tcgtgttggc cacttgcatg acgtctctcc gcctcctttc gggcctgcaa ggaggagaaa  70680
gaaggtcagc tgctaagttc tttagttttc tttgtctttt ccatggctag ggtagaagta  70740
ataggaaagt cctagccttg aactaaaaga aactacttag gctccttgga taagaaccaa  70800
caaataacca ggattttcgc cttcacaacc catcctgtac tctcttgaga catcctcaga  70860
gaaacatgtg cacacatggt tctaggaaac agtgtgccag ccatttttag ccagacagtg  70920
ctctgtttta ccagacagtg ctacttggtc aggcctgata actgagcatt caacacgaca  70980
aaccatcagc ctcataagac tggttgggaa aggtgaggcc taagacacac aaggtagaag  71040
agacccaaag tccaacagta gtggcttctt tgatcttctc tgaaatgaag atgccctagt  71100
```

50

PCT - Sequence listing for submission.txt

```
ttaagcagct agcaagtacc taaatcccag cgcttttcct gaggaacagg gtctcctatt   71160

gatgaatgcc cccagtccct agtacacagc atggtcttgg aggttcatca aacctggctt   71220

tgcatcctcc ttggcagtga gcttgtctgt gataggagcg gagcctctgt tactcactga   71280

cttgtgttag cttaagaaac tacagaaaag caacaggaac agagtctggg gctccctctc   71340

ttccagaaaa aacttctaac attcataaaa actgaaaaaa aaaataaata aaaatatgac   71400

atcagataag cagccctatg ggctggaagc aaccctcagg ttgtctgcag gtgaacagtg   71460

ggcaagctgg gtattgaggc tgttgctggc attgcttgtg acaggacaaa ggatgagagg   71520

aacaggtggg actgcactgc gtctggtaag aacatgacag agtaagacaa aagggagcct   71580

agagtacggt gctcgaggcg ccttggaagc catgcccaag gcctatggat gctccctagg   71640

ccaacatctg ggagagtaca gtagggagtt gggggaaagg gccgcatgct ccctggtctt   71700

cagcagatgg atctgctacc aaaaccatag ttctttgtcg ggtactgaca tgccagtttc   71760

cattgaaagt atatcaactg ccataccagg gcccatctca aaagttagga atggggattt   71820

gttatcataa tgctggggaa agagatagga aatgagggta ctattctacc atgctcacac   71880

ccagcaaacc ataaaccgac caatcaacaa accatggaag gaaagataaa ggaaactact   71940

ttttcaggta tgtgtgtgcg tgcatgcatg tgtgcgtgcg tgtgtgtgtg tgtgtgtgtg   72000

tgtgtgtgtg tgtgtgtggc ggctaggcag atgttcaaaa cattattatt aaatttcctg   72060

cctccctttc aaaccagagc aacacaaacg tgtgccttca tgtaagaagt tgcttgtgtt   72120

tgatttattg caaaatgata ctggtccact tcttgccttg acccacccc aacaaactgg   72180

gctatagcac caagcagact cagtggcctc cttacttata aacactgcac tcttgcatat   72240

tattcaacag ttactgtgga cacagagtca ggaccatgaa gggaggcaat ataggcatca   72300

gaaggctagg gatgattcaa acagagtggt ccaggggggtg gcaaacagca cactatcagc   72360

tttccttact ccataaagta tcctgatgct actggaaaaa cttgtactgt ttaacatctg   72420

agaatgtttt agtgacagaa acatttttga agcgtcttca aaaatgaaga tggcggccaa   72480

tgaaagccat ttactgatac caagtttagg aagtaacttt ataatagta gcctccactc    72540

tactataaac tcacaggcaa agtcagacaa tgcagaaaga ctaaatctga tatatttgcc   72600

ttcagccccc agataaacgt gcacctagaa tgacatgaag gtaggaatag gttttaggta   72660

aactcggttg tatgatgaca gagttgctcc tgtcatctag ggtgctcctt tatgggacct   72720

tgcgagacct cgtatagatg tcagatcctt gcctcggtag gaggtaaaaa acaaccccccc   72780

aaaccctaat ggccaggtgt ggtgacccct atctgcatgc tgggtctgtt ttaggacact   72840

gaggtgagga cacttacacg aaggaatgtg accgagagaa aattcgtttc aaacccacag   72900

tacaagccct gcacggtccc atctgggtca accacagcct tgccgcccaa tcacttagcc   72960

tagcgttaca cagctgatga taacagcagt cacaaagtga tgtcatctga gtataactaa   73020
```

51

PCT - Sequence listing for submission.txt

```
acaccaaggg ctttctgcta tggtcggtct acccttggtt ctcatgctgt attgttagat  73080
gtttggtcac tagtggggca gctgcaggag gaacctttag ggaatggtcc tgttaggggg  73140
agatcctgat gtagcaaaca agctaagtgc tcaacgtctg ttcagcttcc tgtctgccct  73200
gaaatcgctg ctgtgccata agtactttgg ccatgcgaca cacccaaaga tgccttcatc  73260
aacaaaagcc acactggctc cttgttcttc taactttaaa actgttgagc tatgcacacc  73320
actaagcatc acgcaatttg ttagcaacaa tgaaagaacg acctaaacct ctggccatgc  73380
ctacaggagt cctggatttg actgacaccc agtatagggg tgggtatggg aggacctctg  73440
cctggcctct ttgggacgct ccatacctgg ccactctcat ggctactctt actgagtgtt  73500
ggttcaggtg gaatgctcca catagataac ccaatgaagg gacggaggtt tggtgttgga  73560
gaatgtaggt ctgagaccca agactcaaac agacagtaag ttagtgagga tagaggtcac  73620
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cagatgggag catgcacagc ctaaggcatc aaatgtagcc tttccaaagg gcacactcac  73860
ctgggcacaa agatggaatt gtgaaggaaa ttctcaaaga ctttacggta ctcagcctcc  73920
tccttctcag cctgcttctc agcttcagtt ttagggcaag cgcagcatgg ccctttatca  73980
ccaccacaca cttctgtctt gggattttcc gtcacctcct ccacgtcgat ggtaccatcg  74040
gcgtactttc tgatgggtat tttgtctgct tggggaagac cagagatggg aatgaaagcc  74100
atgcaggaag tgcctgttag cattgctggt ggaggggagg ggtgctggtg tgcactgctg  74160
agaagcaagc cctgcaacgt gacaggtgtg accctggggc tcaggttctc tcagacaaca  74220
gacaaggcca gtggcactgc ctgcctgctg cctgccagcc cccagctcac ctttggagca  74280
gtagttgtgc cggtacaggt aaccatcctg gggctgccgc tgccacctca caatgtagta  74340
actcaagtta ccattgggca gagttggagg attccacttc acaatcagct gagaggaaga  74400
gtttgatgct gagaggacat ctaggggaat ggaagggact ggaaagaaga acaaagaaca  74460
tttcagagaa tagaccggaa tccgaggttg aggttatcag gggctcgatg caaaccaaca  74520
ggaagctgca ggcttgacct gggcacagag atagcaacgg accaaccaga gcatgaggtg  74580
aaccagagct ttggaaagat taccaactgg gaggccagcc ctctctcaga gcacttgctc  74640
ttagataatc tatgtgcaaa cacacatggc tcactgacct gggactgaag gggctacgag  74700
ggcatagctg gggttaaagg ggactctaaa aaaaaaccta gagttgattc agttatgaca  74760
actgtcattc tccggtgtgt attaggaaat ggcaaattgg acggcttagt acttcacctg  74820
tgattgcaag ttttaatctc tgataaaaac ttgataaaca tgacagggag ccaaaatgaa  74880
```

52

PCT - Sequence listing for submission.txt

```
gagtgggagt ggggggatgga cagtgtgtgg ggtggttatg tgcctgggtg aaaggactgt   74940
gaaacaagga gcagggactc acagatcttg taagcaagtc atgattcagg aaagccagta   75000
cgcctgagcc ctgattctat gcaaagtcct gttacaagca aatgagttta acaaaacgac   75060
ggaggcttac atactactga tgcccaggct caaaagtaga actaacttac gtaaaaagga   75120
aaacatccca ggaccactgc tgtgtcctca ccatagcaaa agagatacca cagccgaagc   75180
gcaccccatc cccaacacac acacatgcac atggcaaaga atgaggccca ctggttttgg   75240
cagtttccaa agtgcaagag acagaaccgt ggttatgaca cttaagaata aggtccaacc   75300
aagctgtttt tgaatctgaa aggtgaaaac aagcttgtac cggtcagtct tatgacaact   75360
tggcacaacc tatctgacag aaaaaaacct caactgagag gatggctcag tatgatcagg   75420
ctgtaaggca ggcctgcagg gcatcttctt aactaatggt tggtggagga aatgcccagc   75480
tcattgtggt gaggaggcct ctgggctggt ggtcctgggg tctctaagaa agcaggctga   75540
gcaagccact gggagcaagc cagtgcttct ccaaagttcc tgtctctgct ggagtttcta   75600
ccctggcttc cttaacggca gactgtgatc ctgatgtgga agtcaaatcc tttccttgcc   75660
aggtcatata ccaccacacc aacaggaagc gaatggacag agggctgtta ggatgtatgc   75720
ggtgctcaag gctctgagaa ccactgaggg acaacacgtt ggaagaccaa gactgatgca   75780
gagaagacaa gcacttgatg cctggtcccg tgagcgtttt caataagtat ttccaaaaca   75840
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taagtacgtc actatcggtc ccaagcactt ttgaggtcag ggaccaaatg cagtttttaa   75960
tatttaggaa gaagaatagg atttcttaag aatctgctat aatgataaga aattcctgct   76020
tagttttttt tttttcctc tcagatctgc tgcaatgatt cactgggagt cattactccc   76080
aaactttaag atgagaaatg tattcagttg ctttgctctt ggaacggtga atatgtttca   76140
ttgtgttgta agccactcaa gtcgatggaa ttttttgttg taagaggtca gtcattatct   76200
ttacagtgaa gcatatcttt ctacctctct cgtctttgga tacaaactca cacctttgct   76260
tttccccact tctaggttct ggagctgggg aactagtacg taaacacatg aagaagatga   76320
gaagggatta gtcaataatc cgatatcata gtactctaag cctgcgttcg cctgttgaga   76380
aagctggtgg ctacggaata aaggtggaaa gccagcaagc cactagaggc aaggggtgca   76440
ccggtcattg tcgtctcagt ccctggaagt ctgcactgag agagaggaga ccagccacaa   76500
gtggctacat cctgggcatt cagagaaacc atcctactgc tctggaggac accgattcaa   76560
ttgcgtagag cagagatgtt gacatttaag atggtaccaa gtctaggaaa tggctcagga   76620
gaacttaagg tgttggcagt gagaatgtta atacagtgtt aagcagcaac aacaagcatc   76680
tcattgctag ccctccagcc atactgtgcc tatgtaaata aagcaagctt ataaaaattc   76740
agggaacagg ggttggaggt tgttcctccg gtgcgtggat acctgaagca ttggtgcgaa   76800
```

53

PCT - Sequence listing for submission.txt

```
tgtacaagat ttcacttttg gccccacgga tatggtcgtt ttccaccatg gtgagggtca   76860
cagccttgac atagacagca tactgggtcc agggcttcag cccatgcagt aaaatgccag   76920
gctcgccctc cttgttcgga ggcaggtcta catccaccat gttccagctg ttggagccac   76980
aggcatcctg cccgtcatat tccgtaacgt ttttaaatgg tctgaaagac agtcaacaca   77040
ggccagagaa cgttgaaggg ctctggcatc aaaactcccc agaaccttcc ccaggggctg   77100
aacgtgtcac actttctatt tctattggga actccaaata aaactcatca tcaattagat   77160
ttctatacaa aaataaaatc aagcatctgg actcgggagc tcgacagcta tgaaccgcag   77220
aactgacaag cagccttaga gacagcaagt ccctcattca cagggactga aaatgctgcg   77280
tctaagacat gcggatgctc attgtcttct taagtgagag ttaaaaacaa caacaacaac   77340
atcaacaaaa acccaactaa tgaaaaaaaa aaaaacaaaa aacaagcaga gctgtttaat   77400
gcaaacaata aactaataaa acacaacttt tggacaaaac taactttcct atcccccctag   77460
aactctaaaa tgtaattcga taatagccat ttttatttat ttttattttt acttttttgg   77520
tttttcgaga caaggtttct ctgtgaagcc ctggctgtcc tggaactcac tctgtagacc   77580
aggctgacct cgaactgcct cccaagtgct gggatcaaag atgtgcacca ccactgcctg   77640
gctcataata gctattttt ttaaacaatt tttttagtag atatttтctt catttacatt   77700
tcaaatgcta tcctgaaagt ctcctatacc ctccccccgc cctgctcccc aacccaccca   77760
ctcccacttc ctagccctgg cattcccctg tactggggca tataatcttc acaagaccaa   77820
gggcctctcc tcccaacgat ggccgactag gccatccttt gctacatatg cagctagaaa   77880
cacgagctca gggggtattg gttagttcat attgctgttc ctcctatagg gttgcagacc   77940
ccttcagctc cttggatact ttctctagct cctccattgg gggccctgtg ttccatccaa   78000
tagatgaatg tgagcattca cttctgtatt tgccaggcac tggcatagcc tcacaagaga   78060
cagctatatc tgggtcatgt cagcaaaatc ttgctggtgt atgcaatagt gtctgcgttt   78120
ggtggctgag ataatagcta ttttcgatgc ttaactatct cataatattc caacactttg   78180
tttcctgatt gtctcagaga gtggcattgg tgataccacc agttagcatc gccagtgcac   78240
tggcagcact ttcaaaggga agggagggct ctgcacagat gcatggtagg cggggtgtct   78300
actttgacga gatgcaaggg ctgctagcta ctggcttctg aaattatgct gacatgactt   78360
gtgttcgatc acgatgggag aggggtggcc cccatttaca caaacactga gtgattttga   78420
gctttctatt ttccctgggc tataacagtt cccaggaccc taggtcaagt ggcagcgaag   78480
ataccaggca ctgccaccag cacctttgct tctggaaaga tcagtgcctg ggaaaacgga   78540
tgaccacaca gactggggaa accacctggc cacaggaggc tgagtaggaa aatgggacag   78600
ctcaggaagc tgtgatgtgg agtaagcagg atggtcctat caggaactgc tgacacctag   78660
```

54

PCT - Sequence listing for submission.txt

```
gttcgtccct cactattctt taatgctaga gggctcatgg cccagagcaa agtcttggca 78720
aggccatgca tgcatcaagt gactggaaga caatgggtca gttcagggta gccttggtga 78780
gaacagagca ccccatgggg tattttgggg gacagaggct aagacaatat ttaaccaagt 78840
ccacataatg gcttatgaca gtttggaggc attcagttct cttaaaattc atcccctttc 78900
cccttggggt gaacttactc aaacaccata taaacaatga aagggctgag gcgggacact 78960
ctcctgacta gctgctgtct caggttggga cagtttaata tgacaactag agaggtcaca 79020
tgaggatgag gtgacggtcg cctgacttga ttctttatag gtacaccaaa gactctctat 79080
tcagccaagt cacactgcca cctggccgtc cccaccctca agcttgacat cagagtgaga 79140
ggcccaaact cacgcctcct tgtagtaaac tgtgaagctg atgagatccc ggtagtccgg 79200
cggccggtac cggtgccacg ttatgatgat tcggttcttc caggtcgtgg tggaggtgaa 79260
acggagaaca tcactttcac ctggggcaca gaggcacatc catgagtgac agaaacccat 79320
ccgtctctgt gatgtcactc tgagagaaaa ccctgactgt gcttccaaag gcaaatctat 79380
ggctggcgca ctcatgacct gtcaggtcag gctggctgcc cctaagggag aagccctttg 79440
aaatgctccg atcacaggct tctgctatgt tcttgatggg gaacaggtca gggggctctg 79500
cagaaaggtg agggtgctgg ctgtgtacac acttaccacc tctgcctaac tactcttctc 79560
aagatgcctc ctggatccgt agagtatcag ataaatctgg atactcaaaa gacaaggcta 79620
gccctccccc cacatgtatg cacacgtctg actagctgtt ggtcacacag ctcctgattc 79680
cccactaatg ctatataatg acggagggtc aaatagagct ttagtatttc tgtttgtttg 79740
tttttgtttc cttaaaacag ggttttagat gtagcccaag ctggcttcaa actcacaatc 79800
ctcctgcctc agcctgttaa gtggtgagat tataggagtg taccatcatg cctagctcca 79860
tacagtgcta gaggagagac tgacatccag gtctgggacc acatttggag aggggctggg 79920
ttaacaggtt gaactctagg ctatgagatc ttagggtgaa aactctcatc accaggatgg 79980
aattattact ttgtccaaca tgtgaaaagc attccgattc aaagacatgg gctcactttg 80040
ttctagaagg agcagggcag agaaaggagg ccaagtgtga ggacaaggac actggacgtc 80100
cacggaagta ttatagtgga gcatctaccc tgatccttct atggcacagg agagaaaggc 80160
agagctgacc tggagtggac tggctcttcg gtaaatattg tttgctcata ttgaaaaggt 80220
atttaactgt gcaagctcta agaacctgct tggatgttta atagactcaa atggaccctt 80280
agaaaaatat atcagtatga gtgtatcagg cacccgccca ctaatatgca gaggccaggc 80340
actggctgca gtggtttgac agtccatggt gaaacaaaga gcccgcccac ggatgccaaa 80400
gactgttatc tggactgtgg cagtcccagg ggtctgagat gctgtcactc acaggaagct 80460
cgctctccgt tgttcctggt gtttatgtcc cctttgctct ggcgtccctt ggttccggtc 80520
acttcctcca tgcggtaaat ttcggagaca cacagcttgg gattgaaagc aaagtacatc 80580
```

55

PCT - Sequence listing for submission.txt

```
tttccggacc tgacggtcag gttccggtgg ttccagtccc acagctgctg caagttctgg  80640
ttgtctagga catagaagga gtagttcctg gaagcacaga aatgcgcatt agcaacgcac  80700
tgagcccaca gcccccctcag gcgacagaga gcctctctgc ggccagtgta gttccatacc  80760
aacaaggggt ttgcttgctt actggggctt tataacagca gacagtggcg gtagccactg  80820
gcaaaaagat gtgccaagga caatgttttg aaatcgactg gacactaatt aatttcatga  80880
cctctattac caacacacaa agcttctccc accaaaggat gttccttgat tcattccctg  80940
ggaaaatgcc tttggttatt tctctcagag ccaggtatgg acaatgtgct tgaaatcagc  81000
ctacaggcga acagacatgc tccgctactc aaccggaaca gcttacatac tagcagcaaa  81060
ggctgccatt atccctagga ataaatccta cccatgccca atcagcagtg catgatggga  81120
tgggagacag cctggctctc tgtacatttg cctctcgctg caagaagcct tcatttcagt  81180
ccctgagtac gtgggagagg acagacatcc agtgtctccc tgggctctca catcagggta  81240
gctagatgca gcgtgtaaca tggtggcttt ccacatttag tatgtacaca gcttgttctc  81300
agtatcccct accgctagag cttctggtgc agaggtccag agtgcaccag gaatctcgat  81360
gtctagcagg taatgctgat aaacaccagt cctgggtcca cccagaaact accaggccgg  81420
ccacggcact gtttccaagg cctaacttcc actagagggg agatatgggc atggccaaag  81480
ggaagatagc tatcttaggg ggccaagggg agagcaagga ttctacttgg gtgtctgcat  81540
aagttttttt ttttttttta aacagttatt tctaaatcca cccacagacc agacaaacat  81600
gtcccaaagt cctgttctgc cctaaaggct gtgtccacct aggcaccacc tgctgagagt  81660
cctcacccac attagaacta ctgcctaggg ggtctgcttt caacatgacc ttcacatact  81720
gagaaatgag ttacagctgc agggttgcca agcctctccc gacacttcct ggagaactca  81780
ttagggagct cagaggccag gacccaggac cggaagagcc atgaattccc cacaggacaa  81840
gccacaggca gtttcctcgg tgctatgaag agcagcgttc atgtgcgtag gtgaagtctg  81900
aggtctcgtt ggttttaaga ttccttatga gagccagtga gatggctcat gcgtgcaaga  81960
gtacttacat cacaagtctg gtgatcagga ccccgagaag gaagaacagt tactgtgtaa  82020
ggctgtcctc tgacctctgc acatacatcc ctctcatagg taagagtcct cacatggagg  82080
agtcggagct caagtgtgag ctaagcagtt gaatggaagc cccaaccctc cttgagcact  82140
tctgcgcagg cttcagcgca gggtctgcac acgcacgggc tcaatgagcc gctagccttt  82200
ggtaaggagt gttcccctac catgcttgtt tattggagta ggaaacaaag accctgatca  82260
aaggaatcca gatcgtagta cctaagagtg tatgtcctag ggaggtcctt ggatacctgt  82320
cagtcagaac tgccacctac gggacccacc aatgttcact cttattgata tggggtggt   82380
caggataggc agacaactga aggataggtg taatggtgga aagattgggt cccattaggt  82440
```

56

SUBSTITUTE SHEET (RULE 26)

```
gtcttgccta accatgggcc attcttaaac tgctgcctca acgctaacct caccggtctg  82500

gctgctccca agtcttgaga gtcccaggag acaaaaatct cctgttattg aagacacctc  82560

caggccggat acaagggcca actaatcagg tcaaactccc atctccatct aggccaaggc  82620

ctcttagtaa actaatttct caagcaggaa acagaattgt actgaaaata ccttccttct  82680

gagccacaca ttcttctccc cagggaggga gcatgaatta gaaaccagga atttgacaaa  82740

tgaatggcag gcacatagaa actcagggta tttgactaat cactttgaaa agcaagatta  82800

tcttttcaca gtaaacacaa actttctctc tttaaacaat gcagagaagg ctgggagcca  82860

gaataccaat atcaataaaa tccaggcatt gtggagccta cagaaggtaa agaaaaataa  82920

aaaccttcac caaaataata atcaacctgc tggggagggc ccgtccacac agtgcctgct  82980

tcccaacccc cacccgaggc ctgcctcctc aacaccttct gcaatagtga gagttaagag  83040

atatccccag gtggagattt gtctacacac cttcaagata ctaatgtcct tgaatggtca  83100

ttgttttctc agggagatga ctagttaagg gaaccactca ataaatgcga cttcataaat  83160

cgtttctaag ctcactgcct ttttacatcc acagaatatt tttaaaaacc aaactgttca  83220

tttttttttcc tttggctcct acacgctgta tgatctcccg gagtttatt gagtggtatt  83280

ttggctctta gttcgatcct tccttctttc ctaccttcct ttctgcaccc ccccacccc  83340

ctcaagacag ggtttctctg tgtagccctg gctgtcctgg aacttactct gtagaccagg  83400

ctggcctaga actcagaaat ccacctgcct ctgcctccca agtgctggga ctaaagaaat  83460

gtgccaccac tgcctggtag cttgtagctt tttcaacatt agaaaaaaaa atcccctcta  83520

ttggatgggt ttcacctgcc aatgcataga cctactagga tggttagtca acaatttggg  83580

ggccctgtca catgataagc tcacagccaa cacttagcta tgatctgtgg ctaccatttc  83640

taggcctccc ttttaagtga agactgcagg ggaccgagtg tagagtcttc catgtaggaa  83700

ctgataacca ggcccaagca ccttctccac tgcttatgaa gtggcacctg aatggtttac  83760

tcagcttctc tagggctgct ggttctcagc tgcccatgga gctatctttt ctggtctctt  83820

cgggccccga ggccaattga gaagaactgg atgctaaata taaaaggacg ttataagctt  83880

tgaatcacct cacaaaggca caggatgacc tgtgctactc tctgaactgt caaaagtccc  83940

ccagaacaaa gtcacagaaa ataggtaagt cctgcacctt gatacaggca gggctgagct  84000

caaggtctcc agcctacaca ggacccctct ttcaagctct tactggcatc ctggaagcac  84060

agacaaccaa taactcatat ccatttttgc aaggagacac tactactgcc tgtgacagct  84120

gtctctagag ggcatcagaa gccagtacac tgaagctgtc accagtacag tcatttataa  84180

cactacttag cccatctgta gaatattggt tcacttcagg tccacagtta taccatctac  84240

aaaggctcag ttagtatgga aatatatacc caggcaaaac taaaccaagc accacataga  84300

ttgacaaaat aggccgtttg ttcctgagtg ctttttaaaa acagctttgc tgaggtacgt  84360
```

57

PCT - Sequence listing for submission.txt

```
tttaccttct aaaattgttc ccactataaa tatacagctc catgggcttc aataaattta  84420

tacagatggc caatcatctt tcaatcatcc agattcagaa catttatatc aaactgaagc  84480

cccccccccc attcttctcc catccaaggc atttcccctg tctgttcacc caggatgcta  84540

catgtaccat tggctagtat cttactgtgt gttttgcgct tatactgagg aacccctaga  84600

ttatatctaa cgcaccattt tgagaaaata ctatggaaaa tgttgctaag agcattcaca  84660

tgtgatattt gcatacacat gcttccatat ctctaggaac agcctagact tgctaggcaa  84720

agtaactaat tgtatgtatt ttaaaagtcc caagtatgtg ctaaaatgtg gttatgttag  84780

ggtctagttc cagagatgca gggcacatta caaaaccctg agtctgcaaa gggtagagat  84840

gcctaaacag actaagaatt ctaactttat actggccccc ttccagtatt tttgttctgt  84900

tcaagacaat aatctttggc agcacctaag agcttgaact tttcatttat ttgattgctc  84960

ccaaaccaaa gttgtccaaa gcagagcatt tttttttttca gataatggaa atattttctc  85020

tcttattcaa ggagaaccac atatccctat ccccagacaa aacttgattt tccttcttaa  85080

tccccccat gaccccaca ctttgctaga gatcaggtag caagcaccac acactctagg  85140

ttaagtgctc tatcactaca ccacaccact acttctgaga aaacctttc ctttctgtgt  85200

ctgtccttga gtacacagac gtgcaggctt ctggacacag gagagagaca ctgggcatcc  85260

tcctgttact ctctacccca ctgtcctgaa acaggctgtc tcacggagtc tggctcaggt  85320

caggcaggtc atctgactag caagttcttg ggatcagtct gtctcagctc accacctgga  85380

gctactcctg ggtgcagcta ggctcagtca cgccgaggat tcaaacacga ggcctcatga  85440

ttgccaagca agtacactta gctagggagt catctctcca actcctatga tcttatctga  85500

agttgggatt ctacagctat gccacactac agagagagtg atggctgaga ccaaagggtc  85560

ctgctgctac ccaagtaccg ttctgtggct gtgcaccctg atgtctgctc tgctgggatt  85620

ctgcttcacc tgtcgtcggc ctggaaatca gtgtacagaa atgtggcctg atgagcatgc  85680

atgacccagg taagcaggcc cagaaagaaa acacaggaac tacacgccag gcaaaacact  85740

tgtgttccca cggggggcta ccgagaaggc caagatcaac tgcagtgctt tcctggatag  85800

ctaaggctga aggatacctt catgggggtg ggggtgggg tggggggaaa tattcctctt  85860

tccatcaaga cagaagtctt cagaatcctc ctgagccgca cggaagcatt tatgccattt  85920

tcagtagcca tacaaaaagc tcaagaaata gattccttca acactgagtt gaggcaagat  85980

tgcttaaaaa taaataaaa tataaaataa aataaaaact cagaagtggc ctgggactat  86040

atacatttga aggatcacag ggatagcgaa gtcatttcta atctttgcca tgtgccaaac  86100

atacacagaa atactcagaa agttactcga gcttatgctg gcaactcccc cacccaagt  86160

tttctgtctg acttggggtg aggtgaacct ggtgaagttc cacagggctc ccctttccct  86220
```

SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

```
gtaactgtga tgtatccaca cattctggga aacactgggg ggaggggag gaggctatca   86280

gtataaacga cagcaccctg aaattaaatg tcagataact ctgctaatac accctcctc   86340

aaaatctcca gtgcgtccca aggcttacct aaatgataac ctctacatct gcatgcaaca   86400

gtgcctccta taatcctagt actgcctacc tcccccagga gctgaacaca agacaggccc   86460

aaatgtcatt ctgtgctctc tcctcttctg tccctgtgct ttctagtccc ccaaacccctt  86520

ccaggccagc tttgctcaga agcctgtgtg gccttctcca ccagagtctt cctttggta   86580

cccagagcac cttctgtcct ctcctctggg gctctctgaa gcctgtgctt tgcactacct   86640

gtgttcatct gcttattaca aatctttctc tcctttatta aataagtgag gaagaagtga   86700

accagctgag ccctaatact atacaacgag agacaaaggt gagttgttgc tatgggtggc   86760

ccctcaaagc tttggatttc atcacagtta ccagagaaag ctactactaa agagtctcaa   86820

atgtcctggc cagagatatc cttgaagcaa gaggctctca acctgtgggt ttagattcct   86880

ttgaggtcaa atatcagaca tccttcatat catgcattta cattacaatt cataacagta   86940

gtaaaattac agatatgacg tagcaatgaa tagattatgg ttggggtca ccactacatg    87000

aggaactgta ttaaagggtg gcagtactgg aaggctgaga aacactgttt tttaacacaa   87060

gtctccaggc ctcacctgcc ctccactccc ttctcaaatg ctaacagcag ggctggcgtc   87120

agctttccag ggaagcttcc ccaataccag aatccttaac aatacttggc tgatatttat   87180

agtagccaga agctggaaac aacctagatg tccctcaaca gaggaatgga tacagaaaat   87240

gtggtacatt tacacaatgg agtactactc agctattaaa aacaatgact tcttgaaatt   87300

tgcaggcaaa tggatggatc tagaaaatat catcctgagt gaggtaactc aagtcacaaa   87360

agaacagata tggtatggac tcactgataa gtgggtacta ggcagaaagc atggaatacc   87420

cacaatacaa ctcatggacc acatgaagct caagaggaag accaaagagt ggatgcttca   87480

tcctacttag aagggagaac aatataatca agggaagtag agggtgggag ggatttggga   87540

agaagaaagg aggggaggg gaaaagaggg tgcagagtca ggtattgaag gagctagagg    87600

agatgtacag agggtcagga aattgaacag aggggatggg gaactggagg tagcaaccac   87660

aaagtcccag atgcgaggaa agcaagagcc tcccaggacc ccatggagat gacattagct   87720

gaaataaccc acaaagggga aggagaacct gtcaagacca tatccagagg ttagactgcc   87780

ccccacccc gttgaaggat ggggcaaccc acccatcttc aaagttttaa ctcagaattg     87840

ctcctgtcta aaggaaatac agggacaaag agtggagcag agactgaagg aaagtccatc   87900

cagagactgt cctacctggg gatccatctc acacgcagac accaaaccca gacactattt   87960

attgctgatg ccaagaagtg cttgctgaca ggagcctgat acagctccct cctgagaggc   88020

tctgccagat cctgaccaat acagatgaag aggctggcag ccaaatatca gactaagcac   88080

agggacccca atggagaagt tagaggaaga actgaaggag ctgaaggggc cttatctggc   88140
```

59

PCT - Sequence listing for submission.txt

```
atcaatggga ggggaggccc ttggtcctgt aaaggcttga tgccctagtg tagaggaatg 88200
ctagggcagt gaggtgggac tgggtgggtg ggggagcacc cgcatagaag cagggtaagg 88260
tgggatggga tagagggttt gcagagggga aaccaggaaa aaggataaca tttgaaatgt 88320
aaacaaataa aatactcatt taaaaaaaaa aaagacttgg ctggtacttc atacctaagt 88380
tttgaataat gaaaaaatag gctataaata ttcttggaaa taaaaaccag ccttcaattt 88440
tcagcaacat ctaagtgtat gatactttta gttaaggcat aatgataaga taatcatacc 88500
atgtaataat cctgataaga aataatcaaa gcctccttt gactttctat gcctatcgct 88560
tgctcagtgt ggaaaaaagg ggtgggggag cttatcctcc agtaactaac agatctgaca 88620
gctactaatc cgccaaggaa aacgtgcttc ccgatgtcag ggagtatagg cacagatct 88680
actgggggga cataatgaaa cgagatggag ttacagttca cttttaaaatt taatacaagc 88740
aacaatgaat taagggtgac cacggcctca tgtacgggag gccccagaat gattgcgaca 88800
ctctgggcag ggtacctggc acatgcagaa ggattcgcaa ggagaaggag gtttttctga 88860
agcttctctg ctcgcaatgg gaagatggac ggggtgagca gctctgtttc tggctgtatg 88920
taccagggga agacccaggc cagagttggt gtgagaaaaa ctggaggttg taaagaaacc 88980
tcatccagac ataccagcct ggggacaagc cttctccgga tcttcccgtc actgtctttc 89040
taagggccct gattgcttag ttaatacacg tataaaactt caaagcatta acacagagct 89100
acaccagagc cgtagcaaat gtctgaaggg gccagcaagg gcacacaggc cagagtctgg 89160
aaagaagctg tgtgcacatg cagtaagcac cagctttact ctctgctgag aaacccacgg 89220
ctgctttaaa acccagcttg caaagcattt ctgtgcagaa ggcacaaccc ctatcaatac 89280
tccaaatcct gaaagctgat caatacacag acgctgtaag ctaatcaatg tacaagctct 89340
gcaagctgaa atatctctgt aataaaatga actgtccgta ctttgcaatt ctttctgctt 89400
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aaggttccct gggaatacct tggactgcta gaactcagcg ccctagctta gactcgtgtg 89880
gtggtttgga tgagaaatgt cacccatggg gtcacacatt tgaacgaacg gccccaggag 89940
ttggtgctac ttggggaggc tgtggaacct ctgggaggtg ctgccttgct ggaggaagtg 90000
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60

PCT - Sequence listing for submission.txt

```
caccaggagt gggctttggg ggttcagggc cttacctcat ttcctgtctc atgtttgcag   90060

tttgagatgt gagctctaac cttttgtctt gcctgcttat tgccatgcct ctcccaccgt   90120

tacggatgct ccccattata agctcctcct tccctaaggc attttggtca tggtgtctca   90180

tcacggcaac aaaaagtgta actactacga tatgcaaccc ttgatgactg caccttaaga   90240

atgaagacac ccatttgcca aattgttagt atcctgtgac aactccacag gacttagagc   90300

aggaaggtgg gtgaccacct aggcagcagg agcaggccca gggtttcacc ttcattctgc   90360

gtaacaaacc caaggatatt tgaaaagtac actaatcggg gctgggagct ggctcagccc   90420

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ccacttgaca aaaggagaga ctgactccca caagttgtat tctgacacac atacacacac   90540

acacacacac acacacacac acacacacac acacacacaa acactattaa gacgcagcac   90600

gccacagttc tgtgaaagga gaatggagtg tttacccttc cagctgctcc tctcctaaga   90660

tgagacgaag gttcttcagg aaggacaagg agaccaaggc atgagaatgg cggatcttca   90720

cgtagccggt caccacctcg atgagcccca tgaagttctc caactccgag gcaatgttat   90780

ctagagaaag aggagtccat gtcaccgagt cttcctctgg tcaggtggcg cactatactc   90840

agattcacac acactggtgt ggatgcgaag gggaagcagg tcttgcgtgg gggaattgca   90900

gtgagaaggc tggcatagca ccaaccgtcc ctgtctccac tctccgcaag ccacaccggg   90960

acaaggcctc tgaggcggga aagcagactt ctaggaggct ggctgctgca gttgccaagc   91020

tgattaacag aacgtgaaat cagaaatgcc aggctgctaa ttagccccag ctgacaaatg   91080

gaggcaacat ctcttagata tgctcagtga caggcagtcc tggctccaca gtgccatggc   91140

aggactgggc aaacctgtcc cagcctggta agaatggtct ttgctggacc tggagttcca   91200

tatttaaaga ctccatttag ggctgcagga aaacactcca atatcacagc aatgatgcat   91260

gcaggtagtt gatctatctt tccccaccct ggatcgagac agggtttcat gtatgctaga   91320

cttaagatga ggctgaactc ctgatcttcc tgcttcctct ccctgatccc tattcctggc   91380

ctgcaggcag ttttgttttg ttctctctct ctctctctct ctctctctct ctctctctct   91440

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accagaaagt tgccaggaaa agttgctaat gtaacaggac cgagagccag tgaatttctt   91560

ttatcgtgct tacccacctt tcacatagca agtaacataa actttggttc atgacaaaat   91620

tctaagacta taataaatta ggtgaatggg atttttatta tatctgattc ttgaaggttg   91680

atttggtgaa agtttctcct atggtttgat ataagaaga ggacaaaagc cttatactaa   91740

gtctgagcct cacagagtcc cctcacttgc aaaatacata cagtgctagt tgtatgtaag   91800

ggctacaggg aattcaacct gaaaaaaaga gtggctgcgg ctaagcctgt gttttgttcc   91860

ccaagaattg aatctataac ccctgtgtgc aagacaagtg ctctggccgc cctgaactca   91920
```

61

PCT - Sequence listing for submission.txt

```
ctctgtagac caggctagtc tcgaattcag agatctgcct gcctctgcct cagaagcact   91980
aggatgaaag gtgtcttcac tgtgtagacc aggctagcct cgagttcaga gatctgcctg   92040
cctctgcctc agaagcacta ggatgaaagg tgtcttcact gtgtagacca ggctagcctc   92100
gagttcagag atctgcctgc ctctgcctca gaagcactag gatgaaaggt gtcttcactg   92160
tgtagaccag gctagcctca agttcagaga tctgcctgcc tctgcctcag aagcactagg   92220
atgaaaggtg tcttcactgt ggagaccagg ctagcctcaa attcagagat ctgcctgcct   92280
ctgcctcaga agcactagga tgaaagttgt ctgtcaccac acccagtaag taattcttct   92340
tcatgggctg aatttcccaa tcacattgat ctcccatgac aggaagatat aaaaacagta   92400
aggtttatga attttaaaag gcatgtcttg ggatcaataa actcaaagaa aattaataga   92460
tctggtatga gcaaaactac aatttggtta ttaacataag ggtcagcgtt cttgtgtggg   92520
gaacagggcc ctccattgtg gaagggtaga gaatgggcaa taaaaactaa ggacttgggg   92580
gctcgagaga tggctcagca gttaagagca ctgactgctc ttccaaaggt cctgagttca   92640
aatcacagca actacatggt ggctcacaac tatccataat gagatctgat gccctattct   92700
ggggtgtctg aagacagcta cagtgcactt acatataata aatcaatcaa tcaatcaatc   92760
aatcaatctt aaagaaacaa acaaacaaac agacaaatgc ccaagcctca aaaactcact   92820
accacaaaaa accccataaa gaaaaaaaca aacaaacaaa aatccaaaac catacataca   92880
aaaagaaacc ctaaaccaaa aaaaaaaaaa aaaaaaacaa caaaaaaacc caccttgttt   92940
ctattacctc tacagactaa gaatataatt cacttattta acaaatactt aggggcaagc   93000
aatccactat aaataaagag gacactttgt ctctgaagta aagaaaaact ttctttccct   93060
aaagatttac cagtaaagat taaaataata gtcttctgcc tatagtattt tacctcatga   93120
aactactagt agctcaacct agaagttcta gtggcaggaa ctgaagggca tctatctagg   93180
ggactttctc tgtcagtcca agactagaga agataagatt acagggctct gctgccacca   93240
tgggagatgt tgttcatgaa tacaattctg aagcaacatc ccaggagcgc tgtctacacc   93300
aagtgaagaa agggagtctg caggctcaga ccacagcttg aggtgtggat ggcacatctt   93360
tctggctctg agaggtaaaa caggagatca ctctttaatc tttcctttgc tcagtctcct   93420
caacggaggc aagcaaccca aactctggcc ttacagaagt gtggactctg cagcagctag   93480
catgagccag ccatgggtct gagccatcag aggtgtgtgt gtgtgtgtgt gagagagagt   93540
gtgagagggt gagtgtgtgt atgtgtgtgt gtgtgagaga gagtgtgaga gtgtgtgtgt   93600
gtgtgagaga gtgtgagaga gagagagaga gagagagaga gagagagaga gagagagaga   93660
gagagagaga gagaacaggc ctttcctgcg taagatgtga cttaaagaaa gacgagggct   93720
gatcctcttt acaggagtat attctgggct aatggctcaa acatcgactg tctttctatc   93780
```

62

SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

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tggattttat gtttccgaga aactcacagg ggaggcgtca cacaagaggc ttacttacat   93840

cccgtgctgc ttttctaagc ctgtattctg cttgtgacta aagggacaga gccaggaaga   93900

gcatcgacgc aagtaaacca agaagcggtc cagccactgg tctggtgggg tggagtactt   93960

actgcctctc cggatgttaa taagcagatt gcccttcagg atggtgcatc cttggagcat   94020

ttgagcagaa gtcaccgaat cgatggtttt cgttttcttc tcttcatcgc cgcagacttt   94080

ggggcagggg ccttcgcagg ggatacagta catgctggtg aagataaaga gtggaccaaa   94140

accacaaaag tgagtttatc ttcttgcatt aaaacaaaca aacaaaaag aaaacaaaac    94200

agaaaagtaa ggaggctttt tgtttgttat tacagcagca tttcatgaaa gaaccaggct   94260

gaaacatcca aacaatcaca cagtataatc tcctacccag ggcaagccat ccaagctgca   94320

aacacacaga gggaacacag actgcagaag aggaaagcat gtcgcttgtt tttagacaga   94380

atacacttcc catgcaagaa gcatgtgggt atcataggct tgtggctggg gagccagctg   94440

gtctacctgg gagacacaga ctcacaggca ctctggggct ctgaataaat ggagctgctc   94500

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acatacaata aaagccagga acctccgcag ctctctaatg aggtccttgt ccgaatgcta   94800

ccctcagtgc cacacacaac ctggagccag aagcagtggc atgcttcctg cttcctgccc   94860

atcatttagg aaacggcaga gaagatgcta agcctggggc tataccttct gagaccttag   94920

cctgtataca gaataagggc cgagaagctg ggtcgatttc tgaatgagaa aaatgaccca   94980

atcttctgga atgggtggga cagtgttata ttcaaattac tgctcttaaa tgagtccgtg   95040

aaacctcacg aaaagaaaga aaatcagggt aaagcaagag ctgcctttac taaagtcttc   95100

catccgttcc caaaatacta tctatagtct gttttgttta aaaaccttaa tagttctctg   95160

ttatcttcct atttcctatt aggagagtgg ggctgaggtt ttcacaggct cccatgggaa   95220

gtggacctag ctagccaaag tggggacat ctggcttcct ataataccac atgcaacatg    95280

cttgtggtgt tggaacgaga atggccccat agactcatgc atttgaaggc tcagtcccta   95340

gctaacagaa ctgcttggga aggattagga ggcgtctggt gctgagctct cagttatttc   95400

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tctcatttct agcctggaga ggggtttcct tctgaacttt ctttgtgctc tgtttgtgtt   95580

tttctcattt aactacatga cgcataaaac ccagctctct ctaaaaacaa acaaacaaac   95640

aaaaacatac ttggaataac tgcagcttca tacacagacc cgtgcagaca gtacagagca   95700
```

                                      63

PCT - Sequence listing for submission.txt

```
cccgtgtact ttccacccaa cgctcccaac tgctgctaca tccaacataa cgataacaca  95760

gtgacctggc acgcgtgtca ggttctgtgc atttctccat ctgtctacat agacctgtaa  95820

attccctact gcaatcgagt tcgaggacaa cttcaacaaa gtcctcctgt gtgttgcctg  95880

tttgtagctg ccctctgacc tgccccagac ttcactatcc ctaactcccg gtaactgcca  95940

aggtgtcttc tactgccacc ttgggaaatg ttacagaaag gcagtcatat agcacatggc  96000

ttctgaggct gatgtgcttc ccaatgtaca acacccttga agttaaacct tcctttacct  96060

ctcctggtga tgttctgtgg ggaggcctgc tttcctactt attgtaccag atatctgagt  96120

tgtcctcact tcctggtatt acaaacaaag aggctacaga caagtacatg aaataaacgt  96180

tcagggtcaa catgactatg tttattcttt ccccattttt tttttatcca aataggaaaa  96240

cctggagcca cctcccgctt tgttaaaatg tctaggaatc atttagcaat tgaaaacatg  96300

tctataaggg tgtgttctga ttatagctta agtttcctaa aacccactct tgtatagaca  96360

gagcacaaac agtattttca aaatactttc aagcaagtgc taaataggct tcaaaggcca  96420

gcagagggac agctattatt tcttgatagt atttaattt aaaatgggag agactgtgag  96480

aacgggcagg gagcagcagc ccagtgcttt aagagcacac tggagggaag gagacccaac  96540

tcctatgaag acacagcatc ctcactgtgt gttacaggac agttgaatgc ctttcagtag  96600

ggagaggaaa taaacttgca ggtcaaatat gatatagtga gtttgatggc cagctctccc  96660

tctttttttt ttttaatttt tattaggtat tttcctcatt tacatttcca atgctatctc  96720

aaaagtcccc catacccacc cccccactcc cctattcacc cactcccct ttttggccct  96780

ggcgttcccc tgtactgggg catataaagt ttgcaagtcc aatgggcctc tctttccagt  96840

gatggccgac taggccatct tttgatacat atgcagctag agtcaagagc tccggggtac  96900

tggttagttc ataatgttgt tccacctata gggttgcaga ccccttaagc tccttgggta  96960

ttttctctag ctcctccatt gggggccctg tgatccatcc aacagctgac tctgagcatc  97020

cacttctgtg tttgctaggc ccctggcata gtctcacaag agaccagctc tccctcttac  97080

cagccagctc tcccttgctg ctcccagccc cagaaggaag gcattgtctg gactgtgggt  97140

aagcaacttc acactgccag acaaaggtct ttggctcaag atgtagaggg gtacatacac  97200

ccctttttcta tgctaaaagt gattatttag atgtaaaggg cctctaaagg cttatctagt  97260

aacagcttag tcaacagctc aacaaggtag ggtttactag aaggcctgtc tgtccttggc  97320

acatgccaaa agcaatggac ccaagagcta aaaccaacct cccccctcct cttcttcatc  97380

ctcctcctcc tcctcttcct cttcttcata aactgatcac cctaagtatt ttgttacagt  97440

aaccgagagt tgactaacag agactgccaa cacatgaata aaaaaatggc agacttattt  97500

ttagtagact gtattataca attctgagtc attgtagtcc ctggcttacc aaatcattta  97560
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64

PCT - Sequence listing for submission.txt

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aaaatatttg atcttttcct ttttactgtg ataatggtgc agaaattaaa caggtaggaa   97620
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gcttacagtt agagacatct ccaaatacta tagcagcaat ggaatttctt tttgaagatg   97740
tactgaacat cttttataga gagtgactgt agcaaaacta tacattttat atacttacag   97800
aattgttagc aatgctggag actggaccta ggtccttcta tgtgccagag attggatcta   97860
ggaccttcta caaggtgggg actggatcca gggcatctca caagtgtggg cagtattcag   97920
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agggaatgaa ttacaatgga accttccccc aaagtcctct gctctgttca ggggaggaaa   98040
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aacatcaccc atgacgagtt tgtggaagta cagcttgttc agtcagaaac agctctgctt   98160
ccacagtgaa gcctcagagt ccaggaagga aaaccagagg ccacaaagat ggtggaaggc   98220
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gcccaggctt gcaatgagac atgggagacc tgtttccagg cctcatgaat gctggtgagg   98340
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tgggaaggag tatctgtagt taaagtctcc accgctcatg cttcagcttt gcaggtgcac   98460
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aggtcctaca cttaggggct atgcagcaga gaaccctcct gggcctaggg acaagagccg   98700
ctgacctctg ggtgctgttg cggatgaagc ctgagggaca ctcctgcatg cactcatcgt   98760
cgtggataac gaagccatcc gagtcactgc tctcagcgtt ggggatgttg gcgcagaaat   98820
cgcgatccac acagcgccag ccctcgaacc tgtaggtgcc aggcgggcag gcaggcacac   98880
acacgccttt gtagtagtag tgtctgcagg ccacgcaggt tgtgttgtcg tccggtgtgt   98940
ggcagctgcc caggcactcc gggtggcagc actcgttgtt ctcggtgcag gctcgcttcc   99000
cgcacacact tgggcacact gtgaggacag agggagagag ggtggtaagg atgatgggct   99060
acacagcctc ccctgggtca tccgctgcca ccaccagcgt ggcgtaccgg agactggcta   99120
gaaaagcaca cctcctctga aatctgcgta gatcttaccg tctgtgaatt ccacttgggt   99180
aaagacacaa cccaacccaa gtccattctc tcctttagac tcctggtttg ctatgggatg   99240
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ggagcccatg gtactggtga acagagagaa atacagacaa tatgggcctc taggactata   99360
caaggcactg tgctcctcag ctctccttct gtatgagaat tccattctaa gaccccagtg   99420
gatgcctgaa ccacgcacag aacactggcc tgtgcacacc cccttctccc tcatgcatac   99480
```

65

PCT - Sequence listing for submission.txt

```
aaagtgatga agagaggagg cataacaagt acggtggttt gaaggagaaa tgtcctacac   99540
aggttcatgg atgtgaacac caggccggtg gtggtggtct gtttgggaag gttacagagc   99600
ctttagcagg gagctggagg aagtcctttg ctgggggtag agtttgtttg gggtttttaca  99660
gcctggccca cttctctatt tcctgtgtgt gggtggaatg cgatcacttt gtgtttcctg   99720
cctgacaaga ctaaagccat tccttccccc ctcccccgg ccaccacaag gactctgtcc    99780
cctctaggac tgtacaccaa gataaacctc tatctctggc tccattttc tgtcaaggta    99840
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tactgcagca aatgttaacc ataccctta caaaagcact gcgtgactgt ggcctctctc     99960
ttctcaaact ccagaaaaag aaatccaggc tacggaggga ctactctttg ccatgggcac  100020
agaagtaatt atggtctcta aagaggaaca agctacaatc gaagtgccca gtgcttatag  100080
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ctgaacaggt actctgctat gcacttctgt aaatatgtca tgatgaacac acgcctatga  100320
tccttacttg tgaacaacat ataaaacaaa caaacaaaca aacaaacaaa caaatctggc  100380
taacagtaca tgtacccaat tgggggaagg gattgtttgg aaatactaca gaactacata  100440
aatatgtata ttttaactgt gatgtaccaa agagtcaaga ttccatgttt tattaaaaaa  100500
aaaaaaaact actctaaaac caaaactaag ccaaataagc cccagtaacc acaggttaac  100560
ataaagaaca cacaagttca tctgcaccca aaacagccgc tttgtcaacc cttcatgacg  100620
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ccttggacta cggagaaagc actggataga cttggagtgg ataccaccat acagcaatct  100740
cgctacgtct caccgttaca gctgtgcccc agcatcaaac gcgccctcca tgcccacaca  100800
ttactgttcc atgagtacgg ccatctttgt gggcacctct gcacgccact gggatcagtt  100860
ttcagaactg actgcacgga gtcagtatgt gctctggagc cttacaccag tctgtctaca  100920
cagctctaag tcacatccaa gaattcctgt gtcactgccc ttaaaaacag ttaaatcagc  100980
agcatgaccc agtaaggaga ccggagttct cgtgacactg ccaaatcgac ataatcttgc  101040
atttgactct aaagtcatcc ctccacagaa acatcggggc atttcccctc cctggttatc  101100
tcccctgta ggagtttag gtgttctgct gggtatgctc tttggctcca aggcctccta  101160
gcctccactg tggctagagc gtggctgctc tgtgtttgaa gttcgttcat cccatgggct  101220
ataaagcaaa agttttacta gagcttcctg gaacactcct ttaaaaatac agtgtgtgtc  101280
tccttttttc ttgctggctg aaacatagaa atgatgcaca gatattcacg cagccatctc  101340
```

66

PCT - Sequence listing for submission.txt
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tagaccagtg gttctcagcc tgtgggtcgt gatcctcttg aggggtgaca tatcagacac 101460

catgggtatc agatacgtac attatgattc ataatagtac caaagttata attatgaagt 101520

agcaacaaaa taattttatg gttggggtca ccacaacata aggaactgta ttaaatagtc 101580

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acttcttcag gtgaagagaa accaactttt atctatgcaa ctgaaccatc cacacagaag 101700

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ttcatttatt ataactagct tcaggctgtt tttggacacc cattctagct caggaacaag 101820

cagaagttaa ttatctctgg tcacaccaaa aaacaaacaa acaaacaaac aaaaaacata 101880

aaacaacaac aaaaacacca aaaatcaaac caaacaaaca aaaacctgca ggagcccta 101940

atatcagaat tcagacactg tctaccacag caattacctc aaagacagta aaatggagtt 102000

cactgattta acagcctacc atgtttttag cttcacacac taccactgat tctttttttca 102060

ctcaaacaca tcaatatatg acacagttga agatgatagt ctgatgactt aattaaacat 102120

atgcactgca cgggttacat caaggtttgg ggtctaaatg agcactgaag ttatttgtgt 102180

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acccacccag aatttactgg ataaacgctg cacctgtgtg ccaggcaact ggacatcctg 102300

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taaatttgag acatgttgag ccctgttcca ggcctgtgat gggaacttct tctcaactaa 103140

gaaccataaa gttaaaaaca ctgtctttac agatagaacg gttctttttaa ggcatatacc 103200

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67

PCT - Sequence listing for submission.txt

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tgtatataaa tattattagt gttcaggact attaagggat ttcttgaaaa gccccgggca 103560

gtgcgtctcg ccagcagatg gatggctgct ctccatgagt gccaaaactt aaaatttagt 103620

gcagtaacca aatttccaat tacagcacca tggggggaaa ggaggggacc tcccccgcca 103680

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68

PCT - Sequence listing for submission.txt

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caaggagaaa aagcccagct gggggtctgt gctgtgtcca ccttacaagc atcacaatgc 105360

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PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt

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71

PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt

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73

PCT - Sequence listing for submission.txt

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cgcacccaca tatacatata cacagttttt gaaaaaaaaa aaaaagctca aatcaattta 116460
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PCT - Sequence listing for submission.txt

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aacaaaaaca atctgccagc ccggtaacat ggtcatttgc tttgaatggg attgcttcat 116640

tctgtggatc cacattccct gaggtgggcc ctgaatggct aggctcatct tctgggaaga 116700

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ggggactcca agttcaaagt tactcctggc tatatagtga agaatgcaag gcagactaga 118320

ctgggctaca tgagactctg ttttaaaaag ggaggaagaa tccttccaat acataacttt 118380
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75

PCT - Sequence listing for submission.txt

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actcaacttt gcttcagctt acattataaa cgctggtgtt agcatagata cagaagctct 118440

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catgcacaaa ggctcacaca cacacataca cactcacaca cataaacaca aacacacacg 119340

tgctcacata tacacacaca tgcatgtaca cacactcatg catacacaaa cacacataaa 119400

cacacacata tataccctac ttctgtacat gtgtagtcct gactcaggac cttgggacct 119460

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caacaacaac aacaacaaca accaccctca aacctggtct ggctcagcgg gtaagagcac 120000

tgactgcttt tctgaaagcc ccaagttcaa atcccagcaa ccacatggtg gcttacaacc 120060

acccataatg agatccgatg ccctcttctg gtgcttctga agtcagctac agtgtactca 120120

gtataataat aaataagtct ctgggccaga gcaagcagag ttcctaaaat tcaattccca 120180

acaaccacat gaaggttcac aaccatcagt aaatccatcc atccatcat ccatccatcc 120240
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76

PCT - Sequence listing for submission.txt

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atccatccat ccatccatcc atccatccat cttccaaaaa aaaaaaaaag ccaaaaccaa 120300

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tttgggctgt gtgcggcttc atggtagttt accctgtgct gcctgtgttc atttccacag 120420

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ctaagtggct gagccttgag gtctcaaagt ttgtgaccaa tacactgtgg tggacctgcc 120600

ccggttccag agtcactgga aatattctca tagcaagcag gaagatctca gggacagcag 120660

acgtagttct aaatgggcat gtcttgctag aaggcacagc tgatgtgcct tttccagtaa 120720

gcattacaag aagcccattt ccatggttga aaaatgcaaa ggattattct gagccatccc 120780

gatgataaag aggacaacaa tttgccttta aaaaaaaaat ggaagctggg cacagtagca 120840

ctcttctgta gtctcagaac ttaagatggc tgaggaagag gaggacttgg gaagaggagt 120900

tcaaaggctg gcaggggaaa acacatcaag accttgtttc agatccacaa cgtaagcaaa 120960

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tacttcaaac agtgtaattc gtacaaactg gtagagcaca gaagcagaag aacattaaac 121080

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aaagtttcta tgaattaaat atttgttcat taactactcg agttcacttg caaggcatgc 121200

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gatgtgcaca tagataatga gtaaggcaca gacttatgtc ataaagatgc gtatcaggaa 121320

gccaagagca ctgccagcca agaccatggc gtggaaaggc atgtgtaaag caggtgctcc 121380

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gctgtgagcc accatgtggt tgctgggaat tgaactcagg acctctggaa gagcagtcag 121620

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ccaaccaacc aaccaaccaa cctccattgt gagaggtgcc atgccactgg tacctgcctc 121920

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tgcctaacag tgtggaaggc tgcacaggca gtggagggaa aaaccccca aacctctgtc 122040

gtttgttaaa acaaacgagc attttcacat tcactcatac tccctgaccc catagatcct 122100

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77

PCT - Sequence listing for submission.txt

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78

PCT - Sequence listing for submission.txt
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agtcttctaa ggggcagatg aagtctgggt aagaaggact aaagaaaaag catagagtaa 124080

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ataggcagag agagagagag cgagctagag agagaaagta tgtggtatag tttatgtgtg 124200

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cctttagtgc ccctcctcca ctcaccctgt tttctacagc aaaagtatct acaaaaagga 124440

agccgtgcct caggaagtct tcaccaaagc ttgaagagca tggagagaag aagtaaggtt 124500

ccatcagatg ccttgtgttg aggtaagtcc tccctcccaa tcaacccaca atgaatattc 124560

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tcgcacttgt cccgcatgtc ccatgccctt ttcctaggct gcaagcacgc aagtggtaca 125880

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79

PCT - Sequence listing for submission.txt

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taaggcgtgt atagcacaac agaggagtac tccaccgcaa agggatgcac tgtctctttg 126360

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gggtttcagg cttgagcccc ctttagagac aggcagcaga gacacaaagg cctgcccaac 126900

atgtgtagga ttagatagcc tgggtatggc tgaagggaac aggtactcag gttggcccag 126960

gccaggagcc agactctagt atattatgca aggttgcctc ctaaattata atgcacttca 127020

tttgcagaga gtccaacact agactcatgg tgtctggtag cccagagggt aacaggctgt 127080

gttcttcaca gggaacatct gaggacagag acggaccaag agggctcttg acggtggctg 127140

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cagtagtgag aactgcatcc ttgtgaagat gggtttgacc tctgctggag gctacaatgc 127320

agctaaatgt gtctttatct taatgactcc agaaacgcca tgctgtgaaa gaagcaggta 127380

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gttcactttc cagaacccaa ccctcaaaag aacatacttc tagggtgtag ctgggaacca 127500

ggaagcagcc agctctgagc tgctgcttgc ttgctctctc acacagtggt aacaagcaat 127560

gctcatctct tttcaaagca ctccaagcaa ataaacacct gcagaggagc tgatggagac 127620

agacttctct tactggggtg agtctattaa acagaaaggg aggcataaaa atgataaacc 127680

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80

PCT - Sequence listing for submission.txt

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ctcggtctgt gtatcacctg gtcacgcttt ctcactgagg gatattggtc cccgggcatg 127980

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aactggacta agtaattaaa aaggtttcaa tatttaagct cacatttaag ttgggaatgg 128160

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tatcacacat ggaggcttag aagcatcttc ttcaggagaa gacctacagg ggaactaata 128280

tccttttcta gtgcacacat ttaaaactga ggcttagttt aaaccctgtt ttaccagggg 128340

caggggtgtc tgtgcacaag aaagacagac agagtttagt tttagttcta gacttctatt 128400

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aatattcctg ctaggactct ttattttctt tatggcttcc cctagcttat ttagaagaca 128640

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ccctcaagaa aagagtgagc aaggctccat ccacggcgtg ttccaacacc ttcccacata 128820

gctggaccca gatgtcatag gggacttgca gaaaggaagt ttcaacatca gctagccttg 128880

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ctgatcccaa tatatcacag gactgagctg gatgagggag aatgaaggca aaatgaattt 129360

aaataaaatt gaaactgacc ggctaggctt tattctccaa atctcatgaa atagcaaagc 129420

tgagggggac agagccacaa ataaaccaaa agaaaaaaaa aaccaaacaa acaaaaaaaa 129480

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agccatttgg cagaaccatg gagcttgtcc tagttgcttt ctctcaaact cttccctggg 129660

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81

PCT - Sequence listing for submission.txt

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ggggcactct acagccttag tgtgtatgag caggcagagg ctctaggctg gacggcacat 129780
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aaaaaacaaa aacaacccc tccccaaacc caaaccaaaa aaaccactaa aaaacaaaac 129960
aaaaaaaccc caatccacat cctttagaga ttattttgtt aatctgcatc ttgatctgtg 130020
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ttcatcaggg tcgggcctgt gtctgcaaaa agaccagctt gagaagacca ggaggtgtat 131520
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82

PCT - Sequence listing for submission.txt

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agctctttag cttagcgtat tatacaaaag gctgatttcc gatttatcaa agggttacca 131760

aataggaagt ataaaaaccg tatgatcctt acagggaatg gtcaaagagc agtgatcaag 131820

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ccatctacgg atgataaaaa gataactctt cccccttcct gggtgcctgt caggtataaa 131940

cttgaagccg ggcacagtta atcctcacaa ctccccaagg aagaggtatt accatgtttg 132000

ctccagatta agaaagaagg gtcaggcctg aattccaggc atcagaattc tactgagagg 132060

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tggagaggtc agcttgagga agtgctctag caaatggcat caaggaggcc atttccccaa 132300

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gaagctactc ctggaaatcc aatcctggcc agaacatgct agggccaccc acattcctac 133440

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83

PCT - Sequence listing for submission.txt

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accaaatttc cgtacattag tttttctttc tgcttgtgaa aggggtggtg gtggtggtga 133740
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84

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atgcacggtt taaaatcaaa actaacaaaa tatacagtat attagctggg aacaaatagc 137220

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85

PCT - Sequence listing for submission.txt

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86

PCT - Sequence listing for submission.txt

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ataaaacgtc atcttattaa acaacgaacg gccacatgtt ctcacatcta cggctggata 139200

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gcaccatggg atgctttaat tatctggtaa tttcgttggg cttgtttagc actattacta 139320

ttatcaccat tattattgtt gctattattg acgactgtag agtcagtttg tataattaaa 139380

agaaaccaca tagtatttga agtatattaa ctttataaac acaggaagaa ctgacatctt 139440

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gtgttgggag aacaagactg agggcttggg gcagtgtggg tgaggtggaa agctaactgc 140940

gtgccttagt gcatgcctta ggaaagtatc tcagctaggc tactatagca gctatgcatc 141000

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87

PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt
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cacacacaca cacacacaca cacacacaca aactgacaaa atgtaaatca agaaagaaac 144780

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89

PCT - Sequence listing for submission.txt

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ccgaagatga ctttaacag ctgacccagt cccttccacc gcttctgttg tactggatcc 145140

cagggcctcc acgcacccca gagaagcact ctaacaactc actgccagct aagctacagc 145200

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gcaagctgaa cacccaccac cggtgtgctg agagaagaga ctcaaactca caactttcaa 145320

agtcccatac caagcctgat gatgcaaaca caacttgaag tcttattggc gacgctccgg 145380

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PCT - Sequence listing for submission.txt

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caaggggaa cacaccagga gccaggagac aaggtgtagg tgcaggagac aaacaccgtg 146880

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gaaggtgggg cgggggccag gggttgggta tggggaggga aacttaccct ggtggagaca 147180

gtgaaactgt tgtttgccac tgcctctctt aggtagggtc taactgtact cctgactaat 147240

cttcaacttg ctgtattaat caagttgggt tccaactact cttggaacta caggtgcaac 147300

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PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt
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tttgctccct ccatgtcttc ataacttttg gggaatcgga tgttactcag gtgagacaga 150840

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aggtaaatgg ttcatttggt gaggcctcct ctctttgagc agtcacatga atccacaatg 152160

gagaaagaga ctctaactcc tgggatttct ggtaacctaa agagttccat gtctttccta 152220

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93

PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt
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95

PCT - Sequence listing for submission.txt

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96

PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt

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98

PCT - Sequence listing for submission.txt

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99

PCT - Sequence listing for submission.txt

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100

PCT - Sequence listing for submission.txt

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PCT - Sequence listing for submission.txt

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acagaagagc acctattggc tctaaaatcc aacacacaca cacatacagt tttaggctgg 168600

agatatctat aatttttttt tctaattttc aaacttattt gaaattgtca ttaattaact 168660

tttaaaatat ttgaaatcct agcattcagg aggcagaggc tggacaattg ccccacattt 168720

gaggccagtc tggtatacac tgcaagttta ggtcagccag gcctatgtag tgagctcctg 168780

tctcaaaaaa aaaatacata agtaaataaa aattataaat agataataaa atagtcccat 168840

tttacgtgta catcttcagt ttcacaattt gagataaagt gaatacagat attttcattc 168900

agtatctgtg gtagtgccaa cactggatgc tcacacaggc tcatgcatgt gaacatctgg 168960

tccccgtggc tggcacagtt tgggaaggtt atggaacctt taggaggtgg agtcttgctg 169020

gaagaagtga gctaagccac tgggtgcaga ctcggaggct gatagctggg ccccacttcc 169080

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ataagccctt tattacttaa gttgtttttg taacactaat caagtgtgtt tcttggttaa 169260

aaaggacagg ctggactaaa ggattcaatt tcagcactta aggggctgga gagatgagag 169320

agcctgctgc tggggctgtg ggctgggata agttgaggcc cgagtttagt tctcagcacc 169380
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102

PCT - Sequence listing for submission.txt

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catgtttggt tcccaacatt ccatgttcac cccaggcctc caagggcctc cacacacata 169440

gatataccca ccctgagata ttcgcatgca tataaataaa cataaaataa atatttaaag 169500

aacccatcac tttgcagcca tggcttgaca aacaggctct ttggtgtctt cctcacatag 169560

gtgcaagagg aactcaggca ggggtgttga gtttttggat tttgcactta tttatttatt 169620

tattggtggt actctctgtt tattggggga gttgtggtgg gttgccattt gtaacatttc 169680

cattaaagat gttaaaaggc tgccttccca ttttcaaaga ctcagactga tcactctccc 169740

agccagaggc ttctgtcagc tactaaaggg ttcctttccc ttctatttta tggcctttct 169800

cccatccact tctgctttgt tcttttaatt aaaatgaaat gtaggccctc catggctgag 169860

atgctaataa ggcccctgaa agtcatctgt gagcacatcc actcttgttt aaagagccat 169920

gtaaacagac cacagacggc tacagagagc aacgctgcac agggcaagga aaagggaatc 169980

tggctgcacc gtacagtgct acgttgaagt gatttatcac ttatgccagg aggaggaact 170040

gaaacacaaa cgcaatttca agtttaagca tggcgtctcc acaggatctt ccatagcaag 170100

cactctgcac tcgggggctc cctgtcagga aactcctgga caacggttgg tttgccgtct 170160

gatccacttc agttacctca ccaaacattc aagaggtact ttctgatgtg tgtgggcttt 170220

agcgctaggt tgatacaaaa cagtacctgg atctgtactg gaagtcaact atatttgctg 170280

ccaaatccat tgtaactggc tctgcatgga gccatccgtg tgagagaggc tgatgtgtct 170340

gccaccactc tgcagacact ggaaacagcg caggaccaat ctgtatccat cgttcctacc 170400

tgtttctcag tgggtaacat tctcaaagca ttttcagatg aagaatttag tcagacagac 170460

agacagatgg agacacggat cactggaaga ctgctgtatg gggccacatg gggaaacact 170520

gggttagtca ggaagacacg gcggtttcta cagggaaagt ctgggtgtcc ctttggagtt 170580

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gtctctgcct cctgagtgct gggattaaag gcgtgcgcca ccacgcccag gtgggagata 170820

caagttttaa gaggtgggcc tggtgatagg ttcttaggcc actgggtacc ctgtcctcag 170880

agattaaggt aattctcaca agagggctag agaaacgggc caagtgtgac ctctctccac 170940

atctgcttct tatgtttact tgctctcagg ttcctgtcac tgactcgagc aagagcaacc 171000

cttaccatag ctgcactatg atgtttggac ttcaaaacca aactctggac attaactaag 171060

atttctcttt ttaaaatcag taatacactg ttgactaaca atgaatgaat gaagcagagt 171120

aagtaggctg aggatggact ggttcaagtt atcttggcag gcagtgaagt tgggtagtgt 171180

acggcttccc tggcatgtgg ccctagggag accaggacag aagaatattg acgcagagtg 171240

tgagaggcca atcaaggaag tgtgggggct gagatatgtg cttctttact acctaggaat 171300
```
                                      103

SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

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ctacgagaat ctcttcaggc tcagtcgagg ccccccaaac ggcaagcctg tctaagtaca 171360
ggaaacaggc aagattaata tggaatagtg gcgcaaacca attagctcaa aaatttccac 171420
aaccccatgt attagccctc tgctcagctc agggagataa tgagaacaca taacggaagc 171480
tcccagttca ccaatgcaac tggggagcgg ggggggatgg gtacctcaac cactcttaat 171540
gagtctgtag actaagataa cagaatggca gtcttccatc aacatgaggt aaagctagca 171600
tggcacctca gcctttcaaa gttactgttc actgaaatgt tattagaaaa attgccaatt 171660
gtgataaagc ctatggatca aacactactc ccattgcaag gaacattcat aaacagaaag 171720
ctgttgtcag tccccgaaac ttaaactgta tagagcagag aaaacctgga agagggaagc 171780
gccataatac ggatgagaaa acagggctag gggctcgtaa atggcagatc aggaaggaat 171840
cccatccgcc ttggagttgg tgatcttgta atgttcagag aatggactca tttcaactca 171900
caggttcggt gtgacccacg tgcttgctga agcaccgtgc ttactgtatg gtgctacaca 171960
agtgaggtct ctcataagct gcagagacac agaaaagtct caagggacag gtgggtgcat 172020
gtgtccaaga cctggtcgag cagttaatac gtccaggttg tggcttgtgc tctgcttcat 172080
tagtgtgttg ccagcgacta ggaatgtgac ggctaccacc ttgctgtttg gactcatttc 172140
atggggtaac tgcagcaggc acagggaatg agctaagaca gaccctgggt gagggaggca 172200
gctcatcttc aatgcccgga gagcacaacc tatctgatct gatatactct ccagtttaca 172260
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tattacagcc aaaaacatgt tattacaatg tatttttatg actgctgtat tgatactgtt 172680
aattgctggt tataattaag cttcgttata gatacgtatt tataggaatt agcagcatac 172740
atcaggtttg gtggtattta tggtttcagg aatctactac agatctttga aagtatctcc 172800
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agcttctcct ttgaacatgc aggaactaat gagacgcttt ttgaaggagt ccaggtgagt 173040
gacacctatt aaaggtgctt agttaatgct catccccata aacgcccatt acggcgacag 173100
gttcccacta ctcagccgga acgtttgagc tctagatgct cctctgaaga aatggctgaa 173160
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PCT – Sequence listing for submission.txt

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aaatcaggga gagatgctaa acccaaacac agtagcagtg ctggcaggag atgagccagg 173220

ctggtgagct gttcgtaaac cagctgtccc cgcccccaag actggagagt acagagaatt 173280

ccatgcaccc agggtcgtct taagacatga acatgctttc agagctgcat ccctaagaaa 173340

ctcctacaaa cctgctccag accatgaccc tgcaggctct gtctcacccc tgcccttcca 173400

ctcagctgct cctgagttac agcctggcta aaatagcaat gctacatttt ctgccatttg 173460

ggggccactg aggcaaatga tcatgttgaa ggggtaactg gctattcact caaacctctg 173520

cattcctcag tgagaggaca gtctcagagg atcccaccag gatgtgctgg ctctgcatgg 173580

tgggtgtcag aactacattc gatttgcagg taccatatgg tgtttgcggg gctggaaccc 173640

tgcttgtggg tattgaaaat cacgtactgg gagtcaggag cgttgtgagt acaaacattt 173700

cagagtgttg agagtgcttg gtgggggttt aggaacaagg caggctctga cttaccagaa 173760

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cagaggttaa gagcacccga ctgctcttcc gaaggtcctg agttcaaatc ccagcaacca 173880

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cagctacggc gtacttacat agaataaata aataaataaa tctttaaaaa aagaaaaaaa 174000

ggaaccaaga ttaggcattt gattcattaa acaggacagg ggatcaaata cctccgttgg 174060

gctctcgaga acatgacagg gtggggtgtg cagataagaa ggctctagct agggtagctg 174120

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tcagcccact attctgaact atgtccctgc ccagacacag aggcacatgc tgggcctgca 174240

gcaaatagcc ctggagccac actcgtggtt ggcgtgcaga ggaggaacca acccatcaga 174300

actctgtccg tgtgggtgtg tgtaggtgcc tgtggtgaag gtcagaggtc aactcaggtg 174360

tccaatccag gctcctttg aacttctagc ttagtttgtc aacactggca gctgaattgg 174420

gtttgtttgt ttgtttttg agatgtgatc ttgatctgca gcccaggctg ggcttgaatt 174480

c                                                                   174481
```

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<211>    5293
<212>    DNA
<213>    Sus scrofa


<220>
<221>    misc_feature
<222>    (3177)..(3178)
<223>    n is a, c, g, or t

<400>    7
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ctcgctgtgg gggctcctgt ttttctccgc cgcgctctcg ctctggccga cgagtggaga       120
```

PCT - Sequence listing for submission.txt

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aatctgcggg ccgggcattg acatccgcaa cgactaccag cagctgaagc gcctggagaa    180

ctgcacggtg atcgagggct acctccacat cctgctcatc tccaaggctg aggactaccg    240

cagctaccgc tttcccaagc tcacggtcat caccgagtac ctgctgctgt ccgtgtggc     300

tggccttgag agccttggcg acctcttccc caatctcacg gtcatccgcg gctggaagct    360

cttctacaac tacgccctgg tcatcttcga gatgaccaac ctcaaggaca tcgggctcta    420

caacctgagg aatattaccc gggggggccat caggatcgag aagaatgcyg acctctgcta    480

cctctctacg gtggactggt ccctgatcct ggatgccgtg tccaataact acatcgtggg    540

caacaagccc cctaaggaat gcggggactt gtgcccaggg acgctggagg agaagccgct    600

gtgtgagaag acgaccatca acaacgagta caactatcgc tgctggacca cgaaccgctg    660

ccagaaaatg tgcccgagcg tgtgcgggaa gcgggcgtgc acagagaacc acgagtgctg    720

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ccactcccat gccttggtct ccttgtcctt cctgaaaaat cttcgccaga tcctagggga   1260

ggagcagctg gaggggaatt actccttcta cgtccttgac aaccagaact tgcagcagct   1320

gtgggactgg gaccatcgca acctgaccat caaagctggg aaaatgtact ttgctttcaa   1380

tcccaaattg tgtgtctccg agatttaccg catggaggaa gtgacaggga ctaaagggcg   1440

ccagagcaaa ggggacataa acaccaggaa caatggagag agagcctcct gtgaaagtga   1500

cgtcctkcac ttcacctcca ccaccacgtg gaagaaccgc atcatcatca cctggcaccg   1560

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cttttaaaaac gtcacggagt atgatgggca ggatgcctgt ggctccaaca gctggaacat   1680

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gaagccctgg acacagtacg cygtttacgt craggccgtg accctcacca tggtggagaa   1800

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ttccattccc ctggatgtcc tctcagcatc aaactcctct tctcagctga tagtgaagtg   1920

gaacccgccc tccctgccca atggcaacct gagctactac atcgtgcggt ggcagcgcca   1980

gcctcaggac agctatctct accggcataa ttactgctcc aaaggtgagg gggacatggg   2040
```

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PCT - Sequence listing for submission.txt

```
acacctgtgg ctctgactcc cgagccctat gctacgcatt cagcatcagg ctgctgctgt   2100
gtgcagcctt ggccatggtc acaggtgcta accgyggtgt cytcccgtac cggttgggta   2160
acttggctct ccttgggctg ctcttttcca agcagacaaa atccccatca ggaagtatgc   2220
tgatggcacc attgatgtcg aggaggctac agagaacccc aagactgaag tgtgtggcgg   2280
ggagaaggga ccatgctgtg cttgccccaa aacagaagct gagaagcagg cagagaagga   2340
ggaggctgag taccgcaagg tcttcgagaa cttcctgcac aatgccatct ttgtgcccag   2400
acctgaacgg aagcggaggg aggtcatgca ggtcgccaay accaccatgt ccagccggag   2460
cagaaacacc acagtggtgg acacctacaa tgtcacggac ccagaggagc ttgagacaga   2520
gtacccttttt tttgagagca gagtggataa caaggagaga actgtcattt ccaacctccg   2580
gccttttact ttgtaccgaa ttgacatcca cagctgtaac catgaggctg agaagctggg   2640
ctgcagtgcc tccaactttg tctttgcaag aaccatgcct gcaggtatgg tgtgatccag   2700
tcactccatt cctaattcac tcacagcctt gatttgtaca gatggaggct gacacccagg   2760
gcaatgaccc ttactctcag tcctgcttat taaagaatga gtggtctttt gtaggcagct   2820
cactagtcca gcagcccagg aatggagttc attcatagca accccactct ctccccagtc   2880
tctccataca gagtgcttga gagcagggaa ctcaattcag ggtctacact ttccctctcc   2940
ttggttcatg ttgtgcattg ccgtgggccc tttttttttgc ccatttatgc aaagggaaat   3000
ttgccaggtc tctcctgagt tctcagagat tctgtgaaat cctcagttgg ctgccctgaa   3060
tcaaagtgag tgtagctcct gaaggtcagc tcccagagca gcttcgcgtc ctgcttgttt   3120
ggtcctcacc ttcctcttct tttagaagct acctgtggcc cagacagcaa gccatcnnaa   3180
aaaaaaaaaa gaaacctact gtgtatgtga ggtcaggtca ggagaaatga acgcaggtac   3240
cgtctgcagt cctgtatgca tggttgaaga gggtattctt aggtttaatc cagcattttt   3300
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atcacaagtc gaggatcagc gggaatgtgt gtccagacag gagtacagga agtatggagg   3540
ggccaagctg aacaggctca acccgggga ctacacggcc cggattcagg ccacctctct   3600
ctccgggaat gggtcatgga cggaacctgt gttcttctac gtccaggcca aaacgacata   3660
tgaaaacttc atccatctga tcatcgccct accagtggcc gttctgttga tagtaggagg   3720
gttggttata atgttgtacg tcttccacag aaagagaaat aacagcaggc tggggaatgg   3780
agtgctgtat gcttccgtga acccggagta cttcagcgca gctgatgtgt acgtgcccga   3840
cgagtgggag gtcgcccggg agaagatcac catgagccgg gagctgggac agggctcctt   3900
```

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                         PCT - Sequence listing for submission.txt
cgggatggtt tatgaaggcg tcgccaasgg ygtggtcaaa gatgagcctg agaccagggt    3960

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ggcctccgtg atgaaggagt tcaactgtca ccacgtggtg agggaagggc cccaagggtt    4080

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agcaagtcct tcgcttcgtc atggagggcg gccttctgga caagccggac aactgtcccg    4800

acatgctgtt tgavctgatg cgcatgtgct ggcagtacaa ccccaagatg aggccttcct    4860

tcctggagat catcagcagc atcaaggayg agatggagcc tggcttccgg gaggtctcct    4920

tctactacag tgaggagaac aagccgcctg agccggagga gctggacctg gagccggaga    4980

acatggagag cgtcccccctg gacccctcgg cctcctcgtc ctccctgccg ctgcccgaca    5040

gacactcagg acacaaggct gagaacggcc caggccctgg cgtgctggtg ctgcgagcca    5100

gcttcgacga gagacagcct tacgcgcaca tgaacggggg ccgcaagaac gagcgggccc    5160

tgcctctgcc ccagtcctcg acctgctgat cctggatccc gatcccgtgc aaacagtacc    5220

gtgcgcacgc gggcgggcgg ggggagagtt ttaacaatct attcacaagc ctcctgtacc    5280

tcagtggatc ttc                                                      5293


<210>  8
<211>  22
<212>  DNA
<213>  Mus musculus

<400>  8
ggagatcatc ggcagcatca ag                                              22


<210>  9
<211>  21
<212>  DNA
<213>  Mus musculus
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PCT - Sequence listing for submission.txt

<400>   9
gccattctca gccttgtgtc c   21

<210>   10
<211>   21
<212>   DNA
<213>   Mus musculus

<400>   10
gcatgtgctg gcagtataac c   21

<210>   11
<211>   21
<212>   DNA
<213>   Mus musculus

<400>   11
cagaggccca tgtcagttaa g   21

<210>   12
<211>   21
<212>   DNA
<213>   Mus musculus

<400>   12
agagtggcca tcaagacggt a   21

<210>   13
<211>   19
<212>   DNA
<213>   Mus musculus

<400>   13
ggcctcagag accggagat   19

<210>   14
<211>   20
<212>   DNA
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<400>   14
cctccgtgat gaaggagttc   20

<210>   15
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<213>   Sus scrofa

<400>   15
tcagttccat gatgaccagc   20

<210>   16
<211>   20
<212>   DNA
<213>   Sus scrofa

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SUBSTITUTE SHEET (RULE 26)

PCT - Sequence listing for submission.txt

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<400>   16
cctccgtgat gaaggagttc                                              20


<210>   17
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<212>   DNA
<213>   Sus scrofa

<400>   17
tcagttccat gatgaccagc                                              20


<210>   18
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<212>   DNA
<213>   Sus scrofa

<400>   18
ggagtatgat gggcaggat                                               19


<210>   19
<211>   20
<212>   DNA
<213>   Sus scrofa

<400>   19
gaagcattgg tgcgaatgta                                              20

                                                                   . . .

<210>   20
<211>   12
<212>   DNA
<213>   Mus musculus

<400>   20
tggagatgga gc                                                      12


<210>   21
<211>   17
<212>   DNA
<213>   Sus scrofa

<400>   21
aagatgaggc cttcctt                                                 17


<210>   22
<211>   20
<212>   DNA
<213>   Sus scrofa

<400>   22
gatcagcagg tcgaggactg                                              20
```

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SUBSTITUTE SHEET (RULE 26)